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Southern Medical Journal

Journal of the Southern Medical Association

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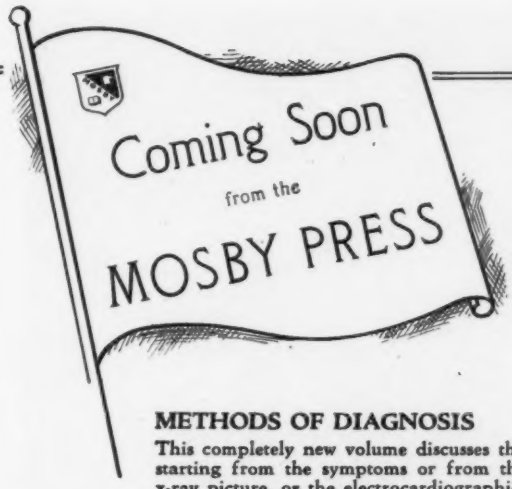

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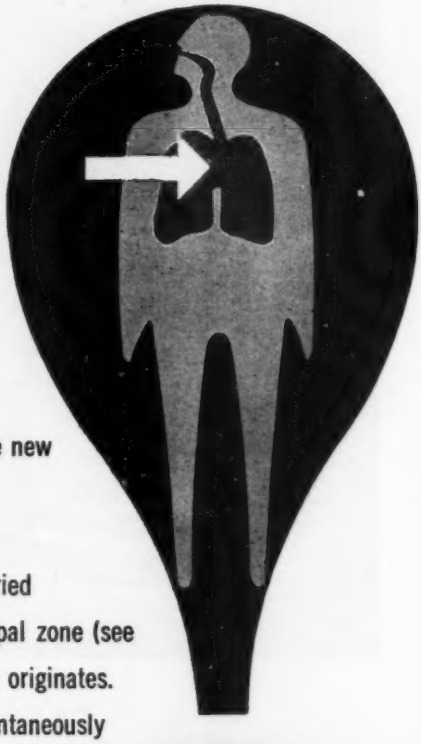

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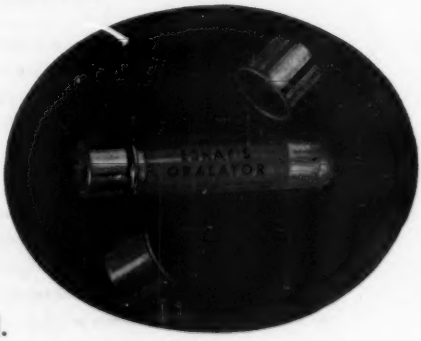

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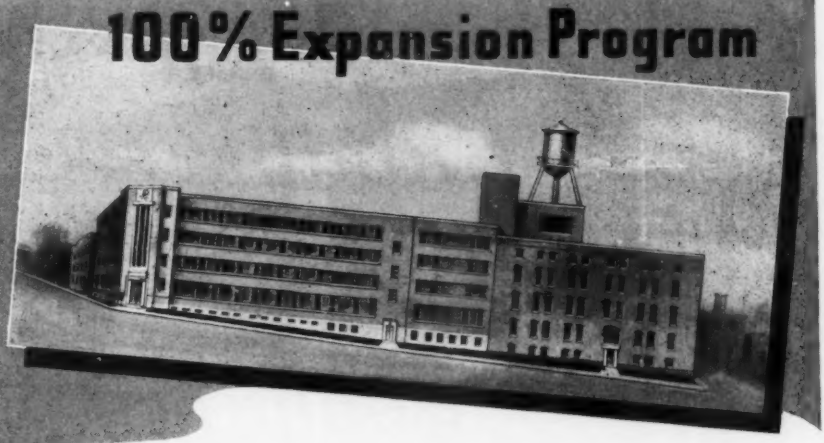

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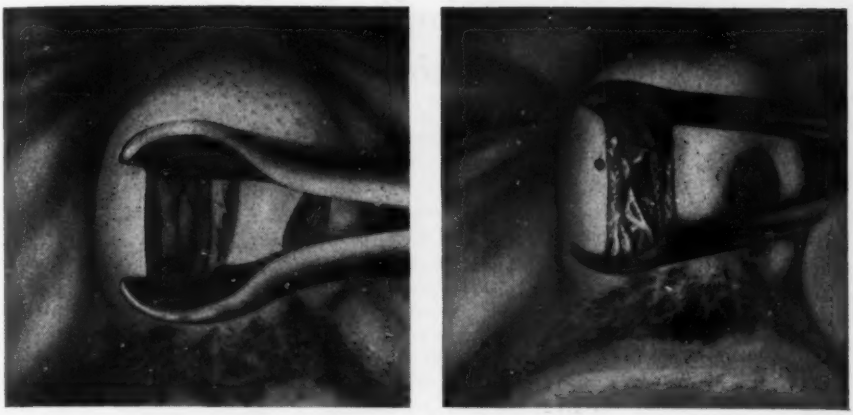

(*Left*) **Before administration of Paredrine-Sulfathiazole Suspension:** Turbinates acutely inflamed, highly engorged, and in contact with septum. Air passage completely blocked.

(*Right*) **30 minutes after instillation of Paredrine-Sulfathiazole Suspension:** Turbinates constricted; ventilation and drainage promoted. Infected areas rendered accessible to the sulfathiazole, which is lightly frosting inferior and middle turbinates.

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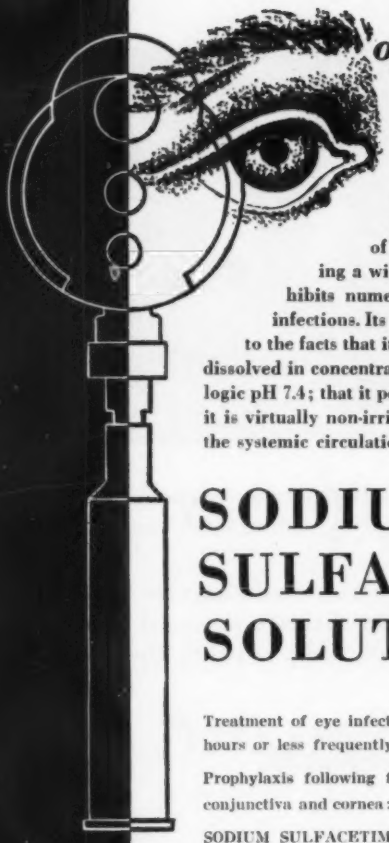

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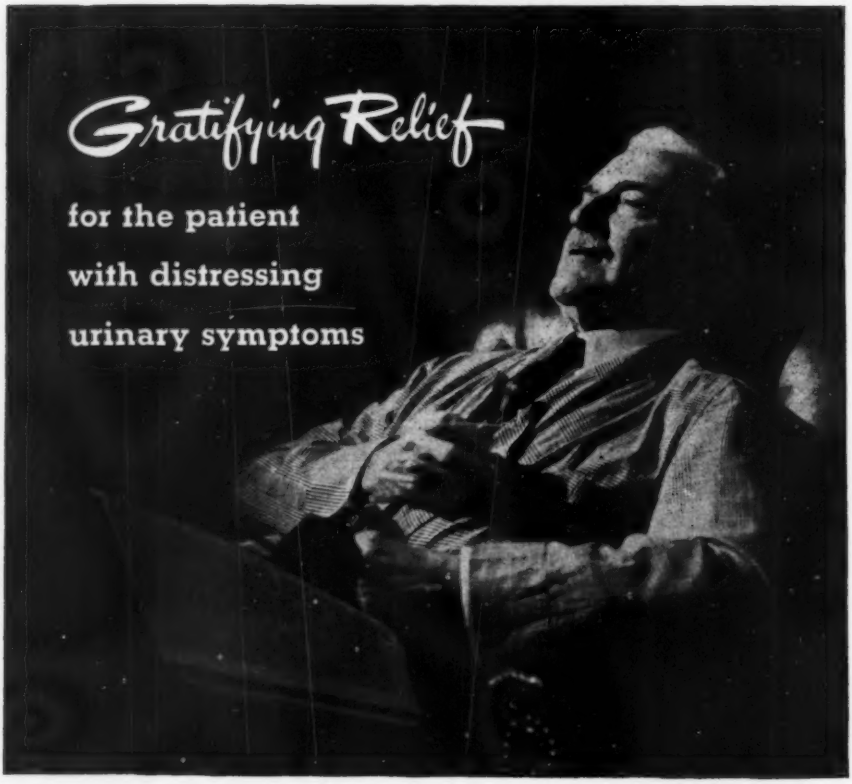

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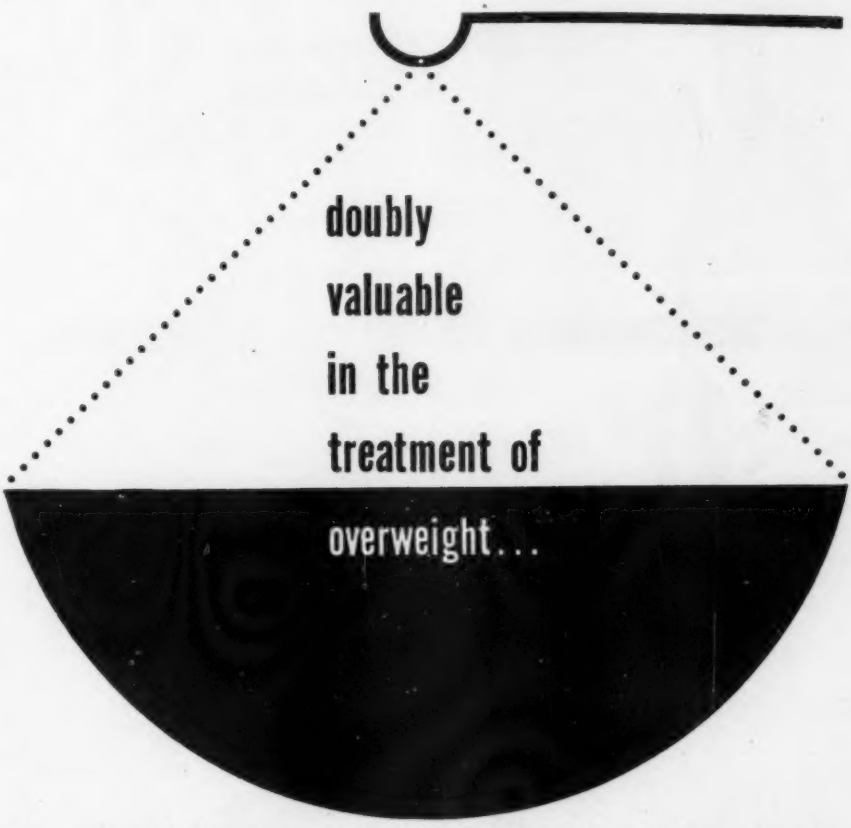

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*Canad. M. A. J. 54:26 (Jan.) 1946

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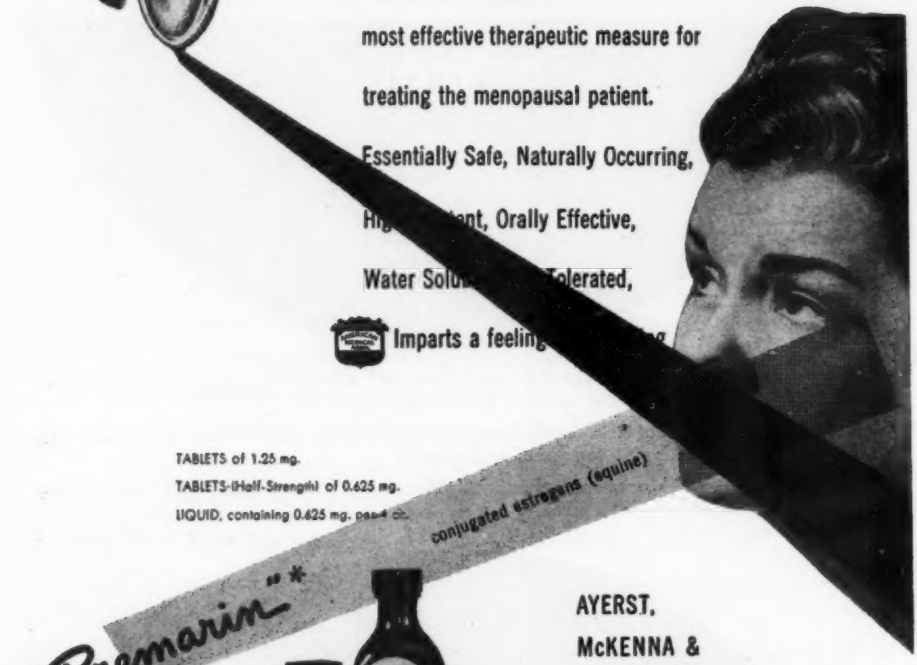

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1. Meyer, Soler, and Neuwalt: Arch. Int. Med. 65:171, 1940

2. Koopmans: J. Missouri M. A.: 38:55, 1941

3. Rivers: Proc. Staff Meet., Mayo Clin. 13:87, 1938

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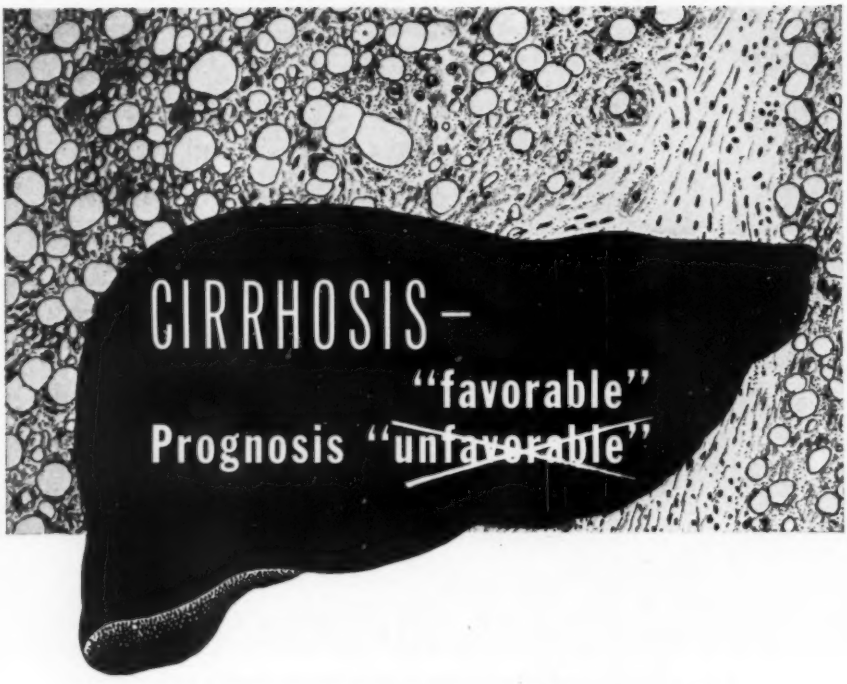

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0.1 Gram (1½ grains)

Physiologically Standardized

Each pill contains 0.1 Gm. (1½ grs.) Powdered Digitalis, produced from carefully selected leaf of Digitalis purpurea, therefore of an activity equivalent to 1 U.S.P. XII Digitalis Unit.

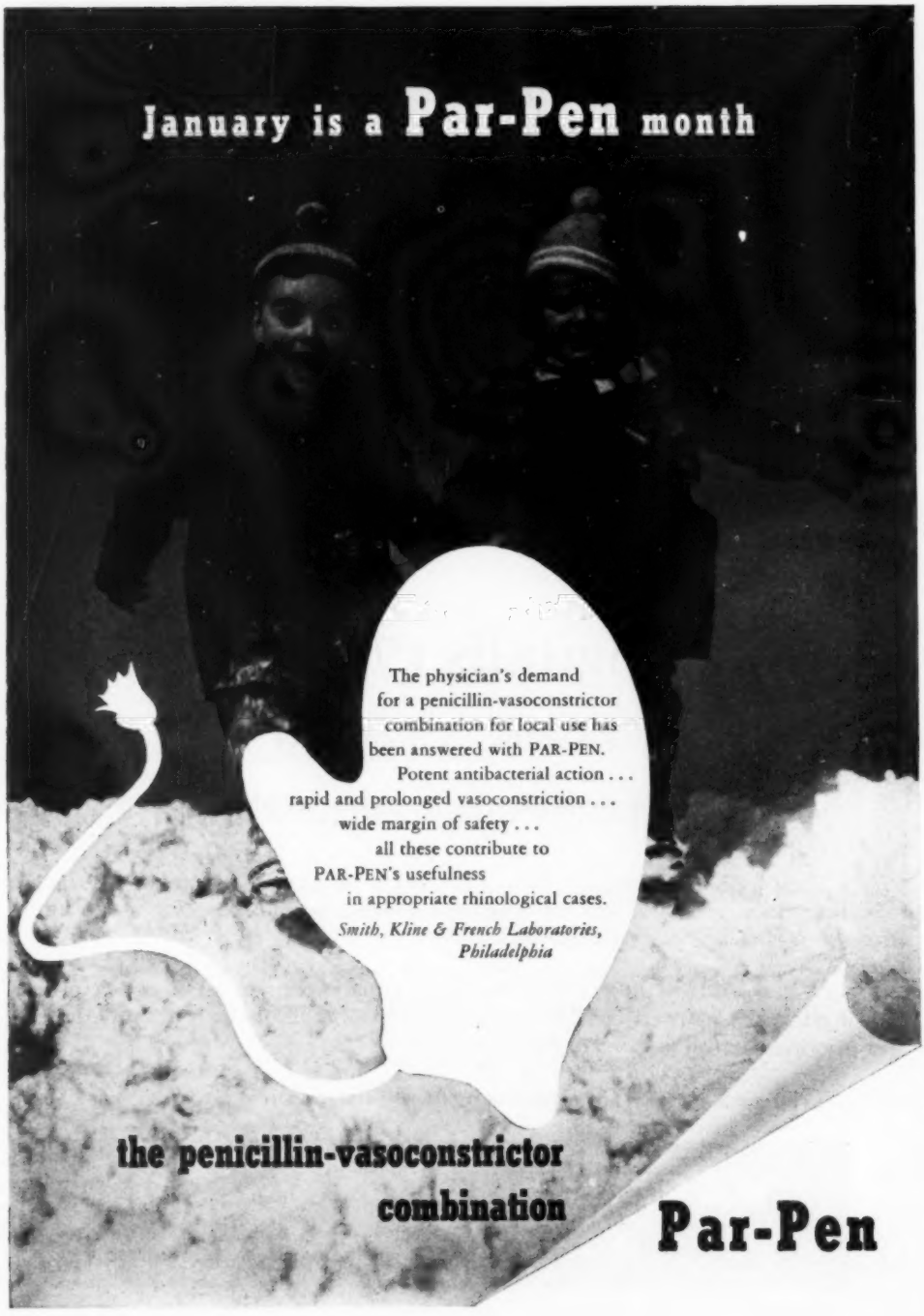
When Pil. Digitalis (*Davies, Rose*) are dispensed on a prescription, the physician is assured that the patient receives digitalis in its completeness and obtains the full benefit of the therapy.

Trial package and literature sent to physicians on request.

Davies, Rose & Company, Limited

Manufacturing Chemists, Boston 18, Massachusetts

D21


January is a Par-Pen month
The physician's demand for a penicillin-vasoconstrictor combination for local use has been answered with PAR-PEN.
Potent antibacterial action . . . rapid and prolonged vasoconstriction . . . wide margin of safety . . . all these contribute to PAR-PEN's usefulness in appropriate rhinological cases.
Smith, Kline & French Laboratories, Philadelphia
the penicillin-vasoconstrictor combination
Par-Pen

CĒPACOL

ALKALINE GERMICIDAL SOLUTION

- a powerful non-mercurial antiseptic
- a mucin-clearing detergent
- a pleasant, soothing alkaline solution

MERRELL 1828

Cēpacol combines a foaming detergency with powerful bactericidal action. These properties, plus its freedom from toxic or irritating effects in clinical use, especially recommend it for infections of the pharyngeal mucous membrane.

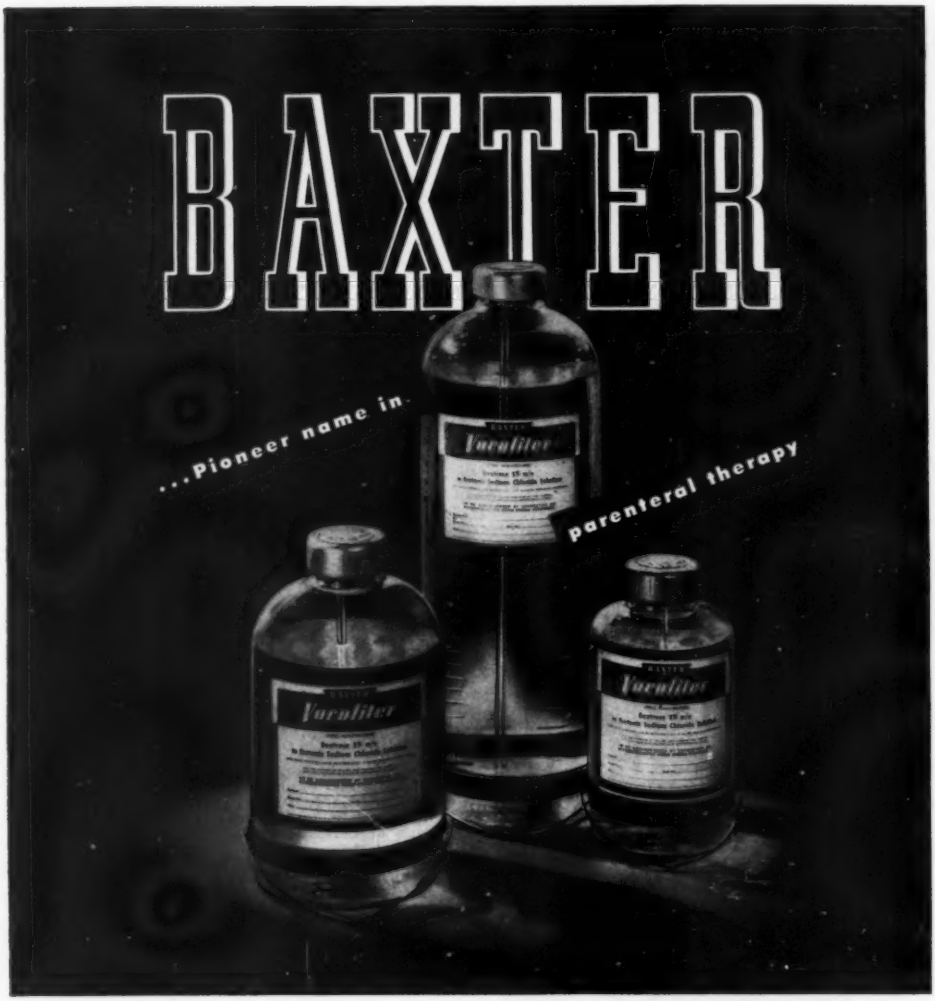
Low surface tension enables Cēpacol to penetrate mucosal recesses, where its cleansing and germicidal actions become immediately effective against the bacteria-laden mucin.

Soothing and mildly alkaline, Cēpacol is effective in post-tonsillectomy hygiene and all throat inflammations. Its taste is especially pleasant and refreshing. May be used as a spray or gargle.

Available in pints and gallons at all prescription pharmacies.

Trademark "Cepacol" Reg. U. S. Pat. Off.

THE WM. S. MERRELL COMPANY • CINCINNATI, U. S. A.



Simpler, safer and more efficient procedures in parenteral therapy were pioneered by Baxter.

Since Baxter solutions were introduced, Baxter has specialized in one field—the development and production of parenteral products that make for a trouble-free program for your hospital. No other method is used in so many hospitals.

★

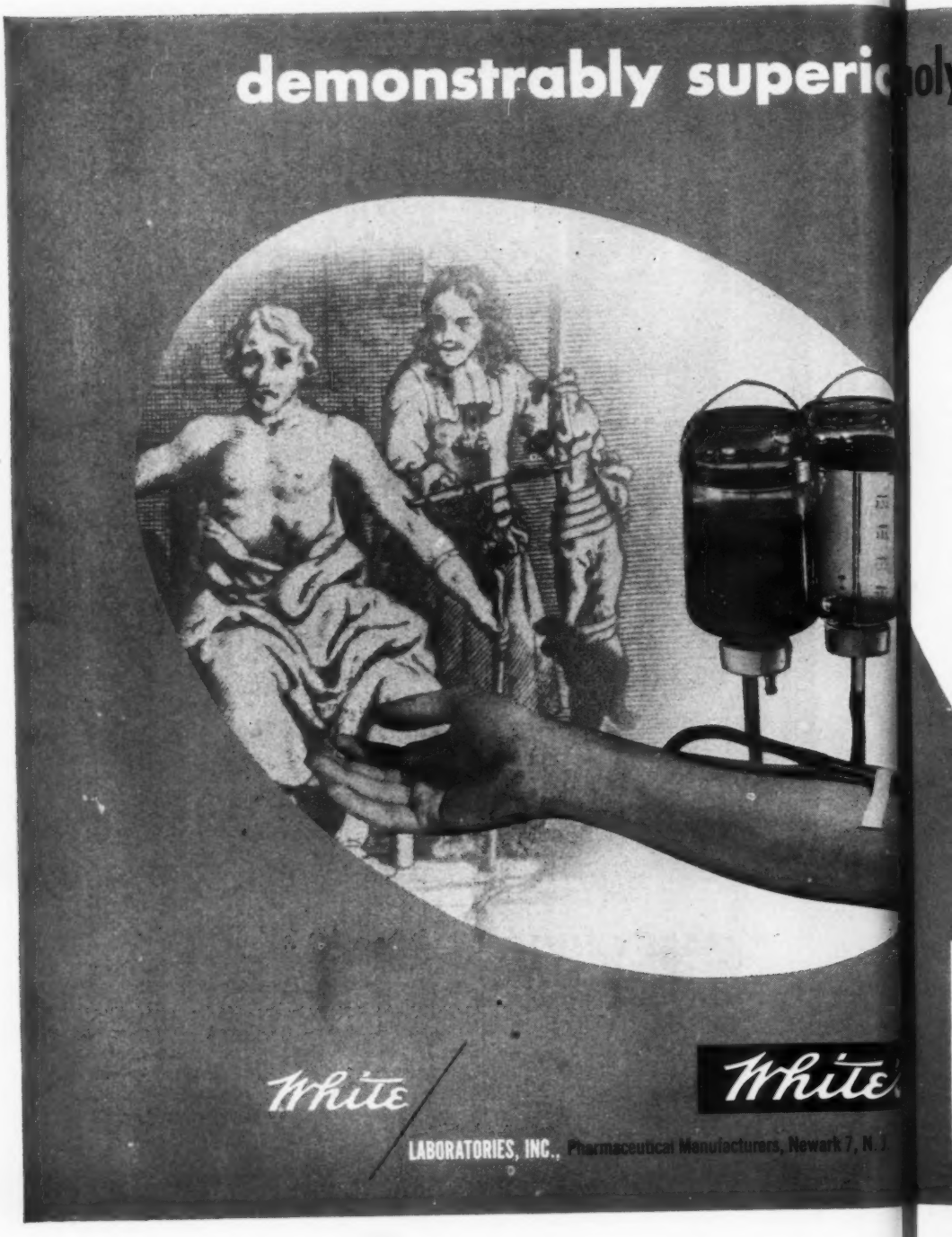
Manufactured by
BAXTER LABORATORIES
Glenview, Illinois • Acton, Ontario

Produced and distributed in the eleven Western states by DON BAXTER, INC., Glendale, California

★

AMERICAN HOSPITAL SUPPLY CORPORATION
DISTRIBUTORS EAST OF THE ROCKIES • EVANSTON • NEW YORK • ATLANTA

QUERY:
Has the Council on Pharmacy and Chemistry yet accepted any individual brand of testosterone propionate?*
*J.A.M.A. May 4, 1946
ANSWER:
Yes. The brand which has been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Non-official Remedies is
TESTOSTERONE PROPIONATE
"RARE CHEMICALS"
Approved literature describing the use of this N.N.R. androgenic preparation in recognized indications will be forwarded on request.
ACCEPTED
AMERICAN MEDICAL ASSN
Obtainable from your usual source of supply in 1 cc. ampules, 5 mg., 10 mg., and 25 mg.; in boxes of 3, 6, and 50.
RARE CHEMICALS, INC. HARRISON, NEW JERSEY
WEST COAST DISTRIBUTORS: GALEN COMPANY, RICHMOND, CALIFORNIA


demonstrably superi
White
White
LABORATORIES, INC., Pharmaceutical Manufacturers, Newark 7, N. J.

olybdenized iron for hypochromic anemias

Unremitting search for improved techniques has transformed transfusion from a crude, dangerous experiment to a scientific procedure. In the medicinal treatment of hypochromic anemias, a marked advance has also been achieved . . .

Clinical evidence demonstrates the therapeutic superiority of molybdenized ferrous sulfate (Mol-Iron) over equivalent dosages of ferrous sulfate alone:

MORE RAPID . . . Normal hemoglobin values are restored more rapidly, increases in the rate of hemoglobin formation being as great as 100% or more in patients studied.

MORE COMPLETE . . . Iron utilization is similarly more complete.

BETTER TOLERATED . . . Gastrointestinal tolerance is excellent—even among patients who have previously shown marked gastrointestinal reactions following oral administration of other iron preparations.*

White's Mol-Iron is a *specially processed*, co-precipitated complex of molybdenum oxide 3 mg. (1/20 gr.) and ferrous sulfate 195 mg. (3 gr.).
In bottles of 100 and 1000 tablets.

*Healy, J. C.: Hypochromic Anemia, Treatment with Molybdenum-Iron Complex, Journal-Lancet 66:218 (July) 1946.

Mol-iron *Tablets*

Hemoglobin Regeneration Plus . . .

"One of the most direct therapeutic technics is the administration of salts of iron in certain types of anemia; when the condition is due largely to low iron intake or to defective utilization of iron, and when a trace of copper is present, regeneration of hemoglobin follows such treatment."

—Editorial: Ferrous vs. Ferric Iron, J.A.M.A., 127:1056 (April 21) 1945.

. . . More Rapid Nutritional Pick-Up

However, rapid return of the *feeling of well-being* would not so generally follow administration of Licuron-B if it did not provide, in addition to the proper ratio of copper and iron, correction of the B-vitamin deficiency which so frequently complicates hypochromic anemia.

The ratio of copper to iron in Licuron-B assures efficient utilization of the iron. The incidence of gastrointestinal reactions, often seen in iron therapy, is reduced because it is possible to give less iron and still get a more rapid regeneration of hemoglobin. During administration of Licuron-B the level of general health often rises as dramatically as does the level of hemoglobin. The grateful patient is enjoying improved nutrition occasioned by the liver B-vitamins and crystalline thiamine, riboflavin and niacinamide in Licuron-B.

★ Small, easy-to-take Licuron-B tablets are supplied in bottles of 100, 500 and 1000. Literature and sample on request. Wisconsin Alumni Research Foundation—U. S. Pat. No. 1,877,237. LAKESIDE LABORATORIES, INC., *Milwaukee 1, Wisconsin.* ★

Licuron-B

LIVER COPPER IRON B-COMPLEX

higher potency:

additional protection

against respiratory infections!

'Vacagen' Oral Vaccine Tablets are an effective, convenient means of stimulating specific immunity against acute bacterial infections of the upper respiratory tract. • This unique biologic preparation of bacterial antigens reduces the severity, duration and complications associated with the bacterial phase of acute respiratory infections. • The antigens in the improved formula provide the means for stimulation of an active immunity to a wide variety of virulent pathogenic organisms usually associated with infections of the nose, throat and bronchial tree. • Each enteric-coated 'Vacagen' Tablet contains the water-soluble antigenic fractions of approximately 100,000 million organisms:

Pneumococcus (Diplococcus pneumoniae) (Types 1, 2, 3, 4, 5, 6, 7, 8, 14)	50,000 million
Beta hemolytic streptococcus (Group A) (Types 1, 3, 5, 6, 12, 17, 18, 19)	20,000 million
Influenza bacillus (Hemophilus influenzae). (Type B)	10,000 million
M. catarrhalis (Neisseria catarrhalis)	5,000 million
Friedlander bacillus (Klebsiella pneumoniae) (Type A)	5,000 million
Staphylococcus aureus (Hemolytic)	10,000 million

'Vacagen' Oral Vaccine Tablets are supplied in bottles of 20, 100, 500 and 1,000 tablets. Sharp & Dohme, Philadelphia 1, Pa.

SHARP & DOHME

'VACAGEN' *Oral Vaccine Tablets*

MANDELAMINE

Reg. U. S. Pat. Off.
(Methenamine Mandelate)

IS AN ESPECIALLY EFFECTIVE URINARY ANTISEPTIC

Safety, ease of administration, and characteristically prompt action combine to make Mandelamine an especially efficient agent in the treatment of urinary infections in children and in elderly patients.

Freedom from drug toxicity is an important consideration to the busy physician who is unable to maintain patients under close medical supervision. Mandelamine may be confidently prescribed in therapeutic dosage virtually without consideration of toxic effects.

Uncomplicated oral administration of Mandelamine requires no supplementary acidification, restriction of fluid intake, dietary control, or other special measures. Only in those infections due to urea-splitting organisms, may accessory acidification be necessary.

Early control of common urinary infections is the characteristic response to Mandelamine therapy. Disturbing urinary symptoms are usually alleviated rapidly and, in the absence of obstruction, the urine is promptly cleared of organisms in a high percentage of cases.

Mandelamine is supplied in enteric coated tablets of 0.25 Gm. (3¾ grains) each, in packages of 120 tablets sanitaped, and in bottles of 500 and 1000.

NEPERA CHEMICAL CO. INC.
21 Gray Oaks Ave.
Yonkers 2, New York
Please send me literature, and a physician's sample of Mandelamine.

Name.....M.D.

Street.....

City.....State.....

NEPERA CHEMICAL CO. INC.

Manufacturing Chemists Yonkers 2, New York

to combat

depression associated with

persistent pain...

Many patients suffering from persistent pain are subject to attacks of depression characterized by deep apathy and emotional exhaustion. Thus, pre-existing neurotic tendencies may be exaggerated and the pain threshold progressively lowered.

By restoring morale and optimism, Benzedrine Sulfate will often effectively combat the depression which may complicate the management of painful conditions. Needless to say, Benzedrine Sulfate is not indicated in the casual case of low spirits, as distinguished from true mental depression.

b

benzedrine sulfate

(*racemic amphetamine sulfate, S.K.F.*) **Tablets and Elixir**

Smith, Kline & French Laboratories, *Philadelphia, Pa.*

SOLFOTON

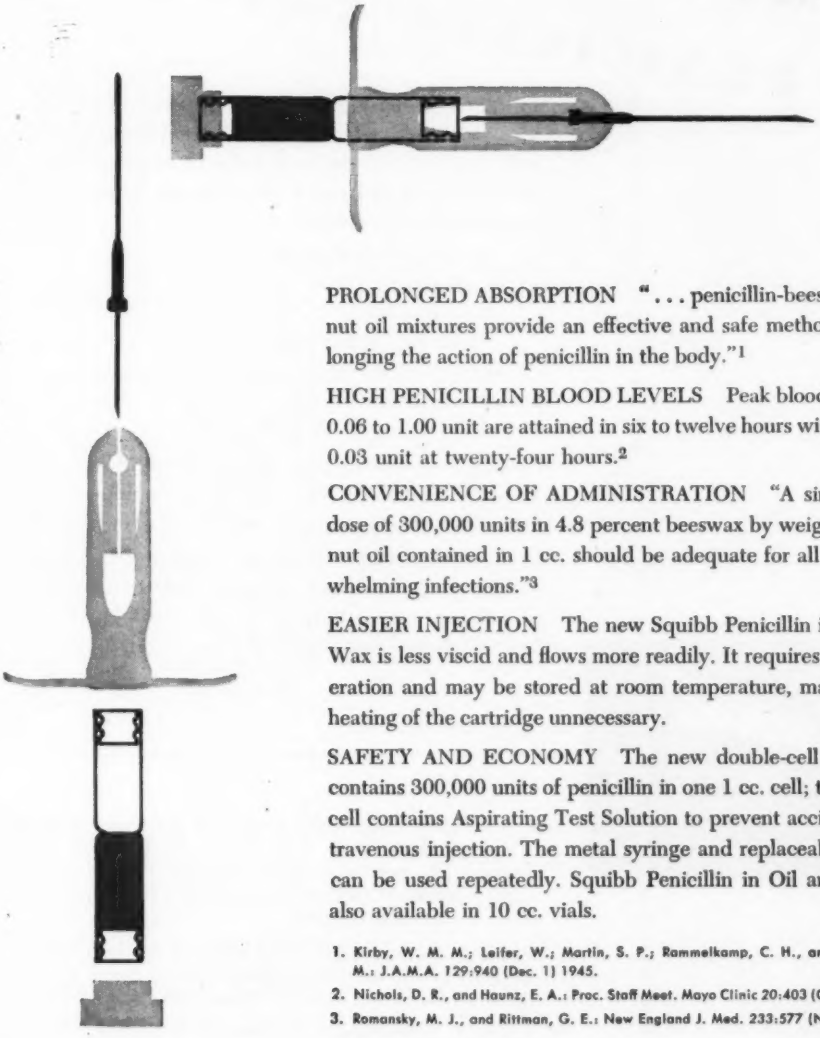
Nerve tension expresses itself in a variety of ways—sometimes externally through the hands—more often internally by such dysfunctions as rapid or irritable heart action, wakefulness, and moderate rise in blood pressure.

Solfoton is remarkably effective in relieving such tension by providing an even, mild sedation, and by improving the detoxication of excitant amines and phenols. Each Solfoton tablet contains 1/4 grain phenobarbital and 1/3 grain of a unique colloidal sulfur. Dosage is one tablet four times a day, for at least two weeks. Solfoton is manufactured by the William P. Poythress & Company, Richmond Virginia.

FOR PROLONGED ACTION—EASIER ADMINISTRATION

SQUIBB *Penicillin*

IN OIL AND WAX



PROLONGED ABSORPTION "... penicillin-beeswax-peanut oil mixtures provide an effective and safe method of prolonging the action of penicillin in the body."[1]

HIGH PENICILLIN BLOOD LEVELS Peak blood levels of 0.06 to 1.00 unit are attained in six to twelve hours with at least 0.03 unit at twenty-four hours.[2]

CONVENIENCE OF ADMINISTRATION "A single daily dose of 300,000 units in 4.8 percent beeswax by weight in peanut oil contained in 1 cc. should be adequate for all but overwhelming infections."[3]

EASIER INJECTION The new Squibb Penicillin in Oil and Wax is less viscid and flows more readily. It requires no refrigeration and may be stored at room temperature, making preheating of the cartridge unnecessary.

SAFETY AND ECONOMY The new double-cell cartridge contains 300,000 units of penicillin in one 1 cc. cell; the second cell contains Aspirating Test Solution to prevent accidental intravenous injection. The metal syringe and replaceable needle can be used repeatedly. Squibb Penicillin in Oil and Wax is also available in 10 cc. vials.

1. Kirby, W. M. M.; Leifer, W.; Martin, S. P.; Rammelkamp, C. H., and Kinsman, J. M.: J.A.M.A. 129:940 (Dec. 1) 1945.
2. Nichols, D. R., and Haunz, E. A.: Proc. Staff Meet. Mayo Clinic 20:403 (Oct. 31) 1945.
3. Romansky, M. J., and Rittman, G. E.: New England J. Med. 233:577 (Nov. 15) 1945.

SQUIBB MANUFACTURING CHEMISTS TO THE MEDICAL PROFESSION SINCE 1858

Taking yet another step toward complete service in antibiotics, Bristol now announces

PENICILLIN TROCHES

containing 1000 units of calcium penicillin in a slowly dissolving base. These troches will produce an adequate salivary level of penicillin promptly and maintain the level for from 18 to 25 minutes.

In Vincent's infection
stomatitis
pericoronitis
ulcerative gingivitis
rapid response has been reported[1,2,3,4] when penicillin troches have been slowly dissolved in the mouth in such patients.

In most conditions one Bristol Penicillin Troche 2 or 3 times daily will provide adequate local therapy in the oral cavity.

Bristol Penicillin Troches are supplied in bottles of 20, each representing 1000 units of calcium penicillin. Available through your pharmacist or supply dealer.

Bristol
LABORATORIES, INC.
SYRACUSE 1, NEW YORK

1. Strong, L. W., and Willett, E. W.: Penicillin lozenges in the treatment of Vincent's stomatitis, U. S. Nav. M. Bull., 46: 353 (March) 1946.
2. Gwinn, C. D., et al.: Penicillin lozenges in the treatment of Vincent's infection and pericoronitis, J. South. California State Dent. A., 13: 17 (April) 1946.
3. Wright, R. B., and Rule, R. W.: Penicillin in the treatment of oral lesions, J. South. California State Dent. A., 13: 19 (April) 1946.
4. Schuessler, C. F., Fairchild, J. W., and Stransky, I. M.: Penicillin in the treatment of Vincent's infection, J. Am. Dent. A., 32: 551 (May) 1945.

* Trademark
** Reg.

FOLVRON* CAPSULES

BRAND OF FOLIC ACID AND IRON

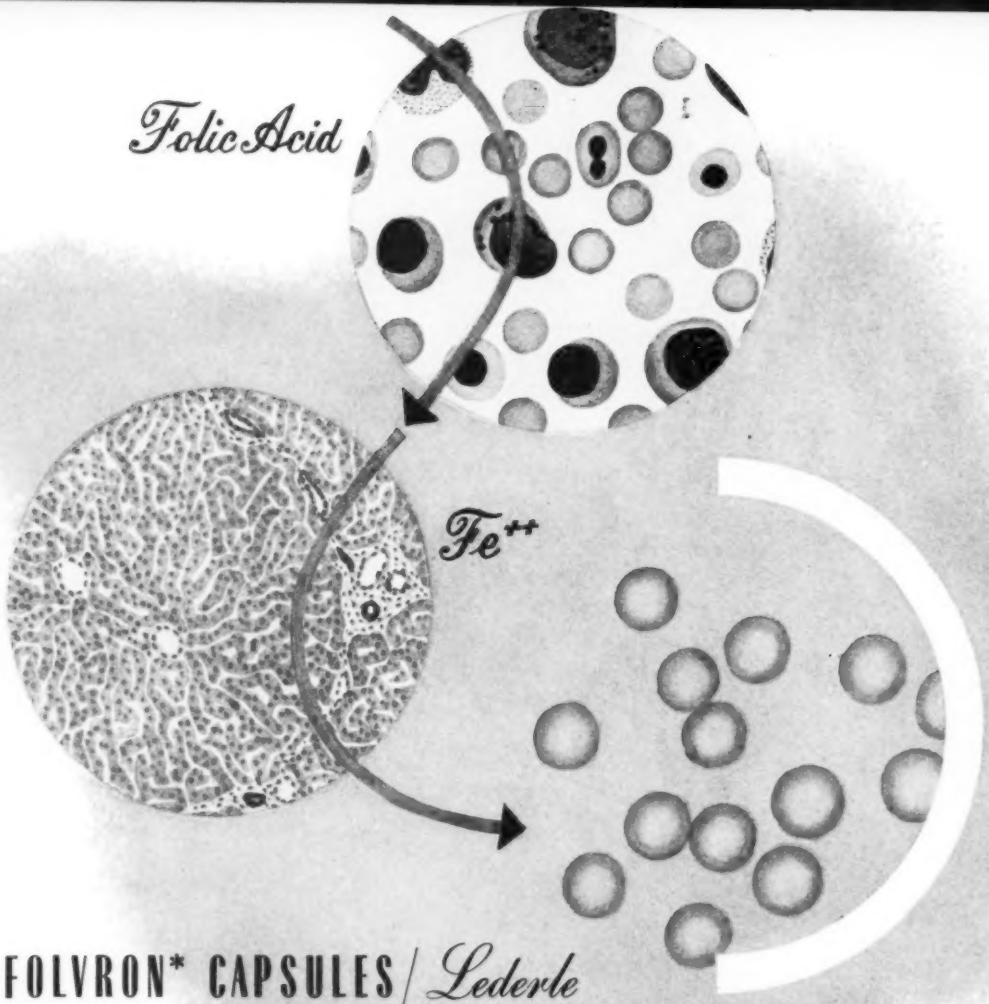
For the first time, there is now available a specific for the maturation of red blood cells —FOLVITE**Folic Acid—and a specific stimulant of hemoglobin formation—Ferrous Iron—combined in a single drug.

INDICATIONS: FOLVRON Folic Acid and Iron Capsules are indicated for the prevention and treatment of the macrocytic anemias, including sprue, macrocytic anemia of pellagra, macrocytic anemia of pregnancy, macrocytic anemia of infants, gastrointestinal macrocytic anemia, and other anemias. They are also indicated for the prevention and treatment of such so-called "secondary" iron-deficient anemias as nutritional anemia, postinfectious anemia, primary microcytic anemia, and the iron-deficiency anemia of pregnancy.

LEDERLE LABORATORIES DIVISION • AMERICAN CYANAMID COMPANY • NEW YORK 20, N. Y.

* Trademark

** Reg. U. S. Pat. Off.



FOLVRON* CAPSULES / *Lederle*

BRAND OF FOLIC ACID AND IRON

For the first time, there is now available in a single product a uniquely useful therapeutic agent for the control of the common varieties of hyperchromic and hypochromic anemia.

FOLVRON Folic Acid and Iron Capsules are an effective oral treatment convenient both for ambulatory cases and for those more seriously ill.

FOLVRON Folic Acid and Iron Capsules permit continuity of treatment, whether traveling or at home, with freedom from the inconvenience of the more complicated liquid and parenteral dosage forms.

FOLVRON Folic Acid and Iron Capsules provide folic acid, which is believed to be either the red cell maturation factor or its immediate precursor.

FOLVRON Folic Acid and Iron Capsules contain ferrous iron, the most efficient form of iron from the physiologic viewpoint. Each capsule contains 1.7 mg. of FOLVITE Folic Acid and 3 grains (195 mg.) of Ferrous Sulfate. Three grains of ferrous sulfate provide the equivalent of 61 mg. of metallic iron.

■ **BOTTLES of 100 and 1,000 capsules**

**Trade Mark*
***Reg. U.S. Pat. Off.*

FOLVITE** TABLETS / *Lederle*

BRAND OF FOLIC ACID

This new drug has been extensively studied by a number of clinicians, and has been found effective for the treatment of macrocytic anemias, including sprue, macrocytic anemia of pregnancy, macrocytic gastrointestinal anemia, the anemia accompanying pellagra, macrocytic anemia of infants, and other macrocytic anemias. It would appear that folic acid is the first choice in all macrocytic anemias except pernicious anemia, where perhaps a combination of folic acid and liver extract is superior to either alone.

■ **TABLETS: Tubes of 25 tablets (5 mg. per tablet) Bottles of 100 tablets (5 mg. per tablet) ■ PARENTERAL: Ampuls of 1 cc., 15 mg. per cc.**

■ **LISTEN** *to the latest developments in research and clinical medicine discussed by eminent members of the medical profession in the Lederle radio series, "The Doctors Talk It Over," broadcast coast-to-coast every Monday evening over the American Broadcasting Company network and affiliated stations.*

LEDERLE LABORATORIES DIVISION • AMERICAN CYANAMID COMPANY • NEW YORK 20, N. Y.

. . . SO SOME CHILD PATIENTS ARE BRATS!

We can't tell you how to reform them, of course. But here's a suggestion that will make things easier for you and the parents in those cases for which the administration of sulfadiazine is indicated: Prescribe Sulfadiazine *Dulcet* Tablets. The brats will *like* them. So will cherubs. And so, for that matter, will many adults who have difficulty in swallowing tablets and capsules, or who should use sulfadiazine tablets as troches for local effect. ● Sulfadiazine *Dulcet* Tablets are candies . . . in appearance, in taste, in odor, and in the way they melt in the mouth. Yet they are accurately and scientifically standardized to produce the desired therapeutic result. Sulfadiazine *Dulcet* Tablets are stocked by prescription pharmacies in two sizes: 0.16 Gm. (2½ grs.), and 0.32 Gm. (5 grs.). They may be chewed, dissolved on the tongue, or taken in a little water. Prescribe the same dosages as you would with conventional sulfadiazine tablets. Would you like a physician's sample? Just drop a line to ABBOTT LABORATORIES, North Chicago, Illinois.

SULFADIAZINE DULCET TABLETS

Pointing the way...

Infron once-a-month dosage in rickets prophylaxis

Infron Pediatric

As effective as it is simple, Infron prophylaxis of rickets leads the way in the modern approach to an old problem, that of *adequacy* in antirachitic protection.

Modern Simplicity:

In line with the current trend to eliminate complexity in nutritional deficiency prophylaxis, Infron Pediatric has the ready acceptance of physician, parent and patient alike—with a resultant high degree of cooperation.

Modern Adequacy:

Clinical studies have shown that once-a-month oral administration of Infron Pediatric provides adequate protection safely and economically.

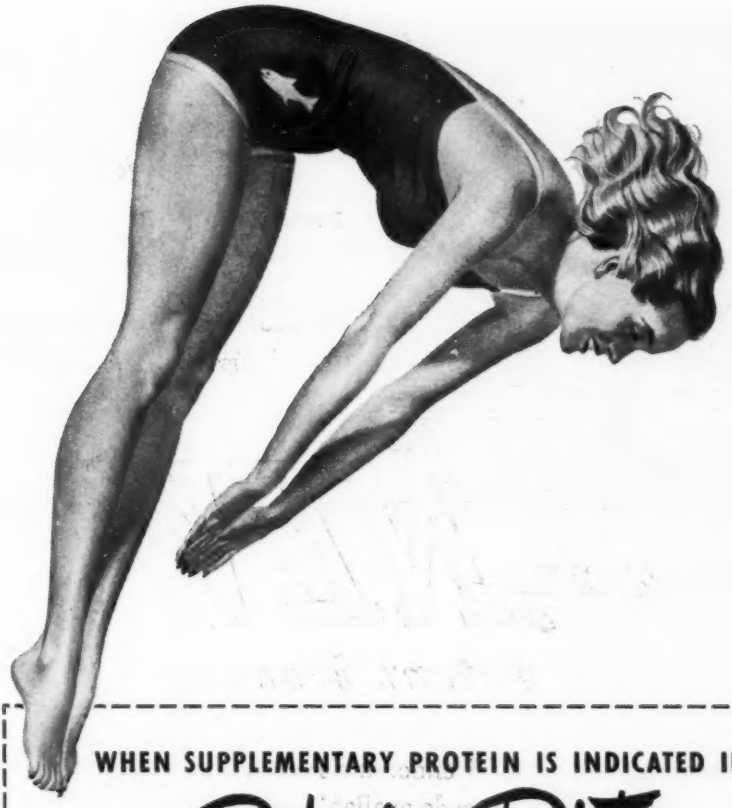
Infron Pediatric is readily dispersible in the infant's feeding formula, milk, fruit juices or water, and can also be given in cereal.

Each capsule of Infron Pediatric supplies 100,000 U.S.P. Units of vitamin D—Whittier Process—especially prepared for pediatric use. One package contains six monthly administrations, each in an easily-opened capsule container.

ETHICALLY PROMOTED

Infron is the registered trademark of Nutrition Research Laboratories.

NUTRITION RESEARCH LABORATORIES • CHICAGO



WHEN SUPPLEMENTARY PROTEIN IS INDICATED IN

Reducing Diets

KNOX GELATINE is especially valuable when you must plan reducing diets containing supplementary protein.

Knox is pure, unflavored gelatine that is all protein, no sugar...decidedly different from factory-flavored gelatine dessert powders which are 85% sugar.

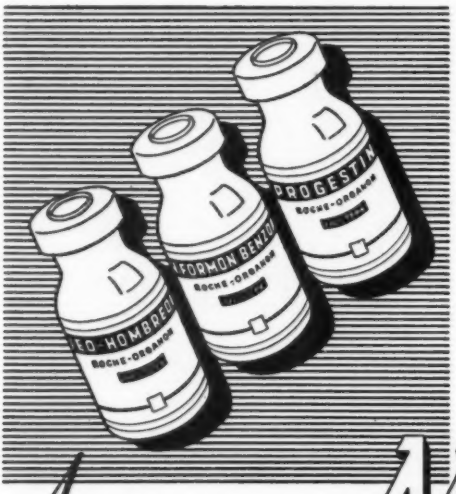
To all reducing diets, Knox Gelatine salads and desserts can add variety and interest. Many of these dishes contain high-residue, low-calorie foods, especially helpful in staving off hunger.

Drinking Knox in water or in diluted fruit juices between meals is another good, low-calorie way to combat hunger and make dieting easier.

If You Wish FREE Diets and Recipes write to Knox Gelatine, Johnstown, New York. Dept. # 408

KNOX GELATINE (U.S.P.)

PLAIN, UNFLAVORED GELATINE...ALL PROTEIN, NO SUGAR



NEO-HOMBREOL*
FOR POTENT ANDROGEN THERAPY 25 MG PER CC

DIMENFORMON* BENZOATE
FOR POTENT ESTROGEN THERAPY 2000 R.U. (1/3 MG) PER CC

PROGESTIN 'ROCHE-ORGANON'
FOR POTENT LUTEAL THERAPY 5, 10 and 25 MG PER CC

Announcing **NEW**

Potent Economy VIALS

EVER IN THE VANGUARD of endocrine research and manufacture, Roche-Organon has just made available to the medical profession new 10-cc vials of its outstanding sex hormone preparations for parenteral therapy. These convenient vials permit savings of up to 30 percent; moreover, they facilitate adjustment of dosage to individual requirements. The therapeutic advantages of Roche-Organon sex hormones have long been acclaimed by physicians; now this new dosage adds worthwhile economy and impressive convenience to superior clinical efficacy.

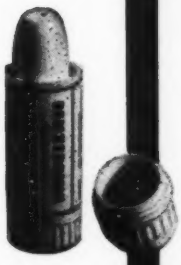
ROCHE-ORGANON, INC.

ROCHE PARK, NUTLEY 10, NEW JERSEY

**REG. U. S. PAT. OFF.*

Sinal drainage"... can be achieved by the introduction of nontoxic, volatile vasoconstrictors, such as ...ampketamine [Benzedrine]."

Russell, H.G.B., abstracted, Proc. Roy. Soc. Med. 36:401.



To relieve the discomfort of sinusitis

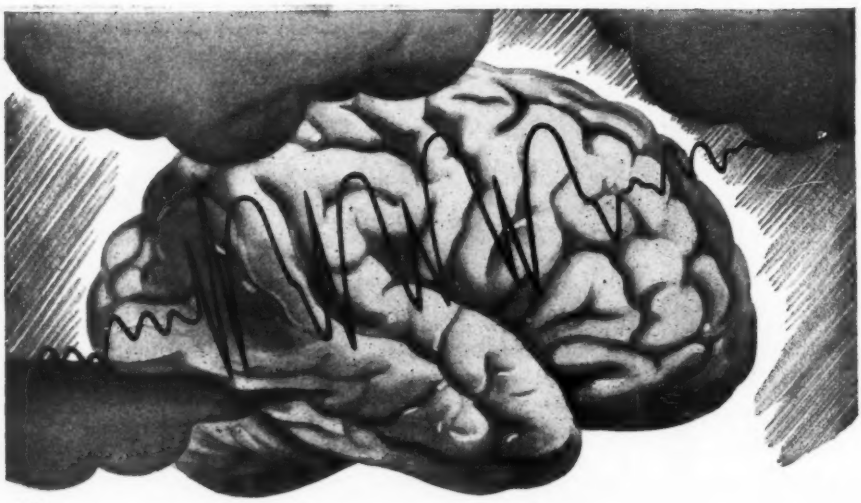
The vasoconstrictive vapor of Benzedrine Inhaler, N.N.R., diffuses evenly throughout the upper respiratory tract, opening sinal ostia and ducts which are frequently inaccessible to liquid vasoconstrictors. The sinuses drain. Headache, pressure pain, "stuffiness" and other unpleasant sinusitis symptoms are relieved.

Each Benzedrine Inhaler is packed with racemic amphetamine, S.K.F., 250 mg.; menthol, 12.5 mg.; and aromatics.

Smith, Kline & French Laboratories, Philadelphia, Pa.

Benzedrine Inhaler

a better means of nasal medication



BRAIN STORM

The encephalographic tracing of a typical epileptic seizure with its large widely spaced waves resembles a gale-swept sea. By calming the cortical storm without producing noticeable drowsiness, Mebaral makes the lot of the epileptic much more tolerable. The average dose for adults is from 3 to 6 grains daily; for children from ½ to 3 grains daily. Tablets 0.03 Gm. (½ grain), 0.1 Gm. (1½ grains) and 0.2 Gm. (3 grains).

Mebaral may also be administered in combination with Luminal or diphenylhydantoin sodium.

Write for detailed information.

MEBARAL
Brand of Mephobarbital

Winthrop CHEMICAL COMPANY, INC.
New York 13, N. Y. Windsor, Ont.

STREPTOMYCIN NOW IS AVAILABLE

Physicians now may obtain adequate supplies of this remarkable new antibacterial agent, without restriction, from their local pharmacists and hospitals.

CLINICAL INDICATIONS

Streptomycin is effective in the treatment of: Urinary Tract Infections, Bacteremia, and Meningitis due to susceptible strains of the following organisms:

Esch. coli
Proteus vulgaris
Klebsiella pneumoniae (*Friedländer's bacillus*)
B. lactis aerogenes
Ps. aeruginosa (*B. pyocyaneus*)

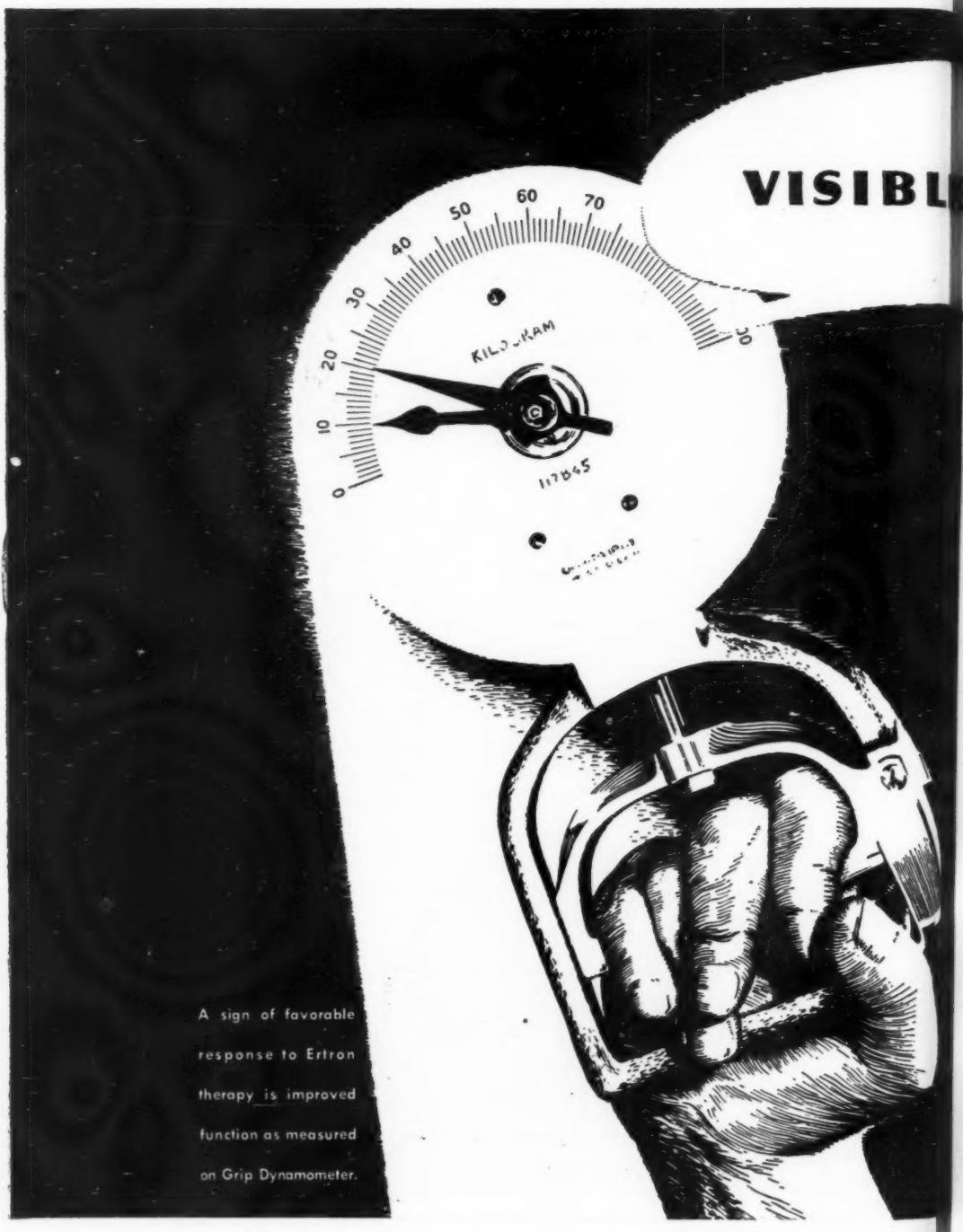
TULAREMIA
All *H. influenzae* infections

Streptomycin is a helpful agent also in the treatment of the following diseases, but its position has not been clearly defined:

Tuberculosis.
Peritonitis due to susceptible organisms.
Pneumonia due to *Klebsiella pneumoniae* (*Friedländer's bacillus*).
Liver abscesses due to streptomycin-sensitive bacilli.
Cholangitis due to susceptible pathogens.
Endocarditis caused by penicillin-resistant, streptomycin-sensitive organisms.
Chronic pulmonary infections predominantly due to streptomycin-sensitive flora.
Empyema due to susceptible organisms.

STREPTOMYCIN
(HYDROCHLORIDE)
Council MERCK *Accepted*
MERCK & CO., Inc. RAHWAY, N. J.
Manufacturing Chemists

MERCK MERCK


VISIBL
KILO-KAM
0
10
20
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40
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60
70
A sign of favorable response to Ertron therapy is improved function as measured on Grip Dynamometer.

EVIDENCE

of Steroid Therapy in Arthritis

Observers who have noted the use of Ertron—Steroid Complex, Whittier—in arthritic patients have been impressed with—

1. The increased mobility of affected joints.
2. Reduction in swelling.
3. The relief of pain reported by patients.

Ertron is a systemically acting drug for a systemic disease. The therapeutic action of Ertron manifests clinically a fact of steroid chemistry—Ertron is unique chemically as well as therapeutically.

The method of ergosterol-activation employed in the preparation of Ertron produces a complex containing hitherto unrecognized factors which are members of the steroid group. The isolation and identification of these substances in pure form further establish the chemical uniqueness and steroid complex characteristics of Ertron.

Each capsule contains 5 mg. of activation-products (Whittier Process) having an antirachitic potency of not less than 50,000 U.S.P. Units.

Physician control of the arthritic patient is essential for optimum results. Ertron is available only upon the prescription of a physician.

Supplied in bottles of 50, 100 and 500 capsules. Also, for supplementary intramuscular injection, Ertron Parenteral in packages of six 1 cc. ampules.

Ertron is the registered trademark of Nutrition Research Laboratories

NUTRITION RESEARCH LABORATORIES • CHICAGO

NO. 7 in Schenley Laboratories' continuing summary of penicillin therapy.

EMPYEMA:
treatment with PENICILLIN SCHENLEY

Penicillin exhibits a marked ability to sterilize pleural effusions whenever the infecting organisms are penicillin sensitive. It is most effective when administered in large doses during the incipient stages. Patients should be observed carefully for at least two weeks after discontinuance of penicillin therapy to avoid possible recurrence.[1]

In the management of empyema, it is especially appropriate to apply the maxim:

give enough-soon enough-long enough

1. Poppe, J. K.: J.A.M.A. 129: 435 (Oct. 6) 1945.

PENICILLIN SCHENLEY. Treatment: Penicillin solution is injected directly into the pleural cavity after aspiration and after irrigation with sterile isotonic salt solution, if necessary. Penicillin should not be used for irrigation. The optimum dose for each injection is 50,000 to 200,000 units in a volume of solution less than the amount of fluid or pus aspirated. The frequency of injections depends on the extent, type, and severity of the infection, and the response to therapy. Treatment should be continued until after the fluid becomes sterile.

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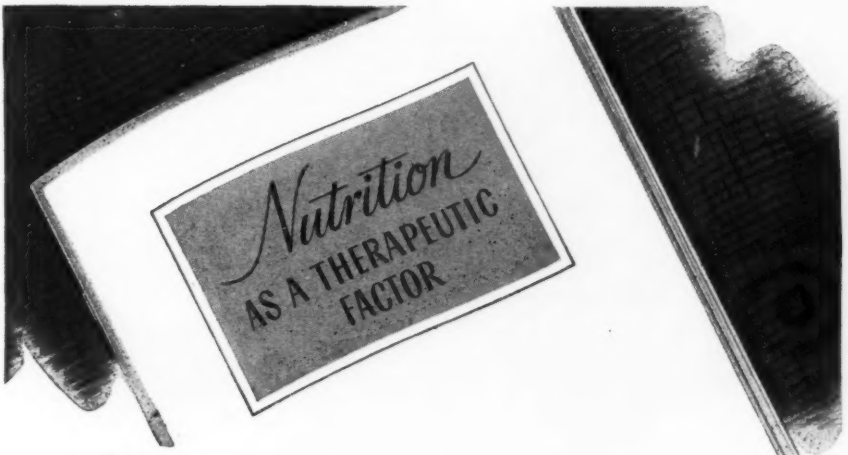

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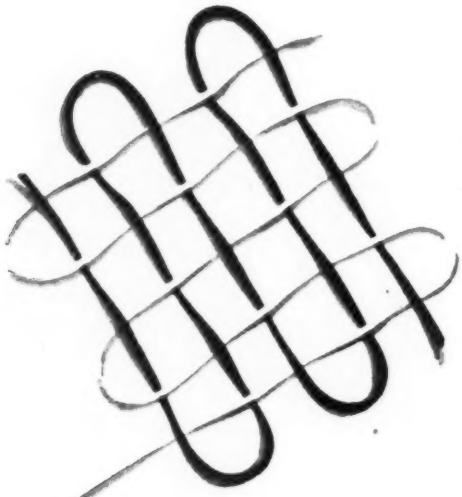

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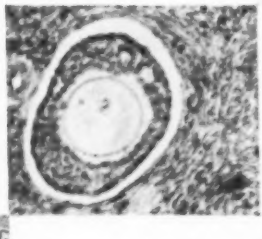

Color photomicrograph of section of ovary showing corpus luteum.

Color photomicrograph of section of ovary showing graafian follicle.

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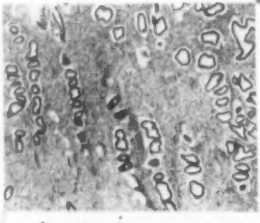
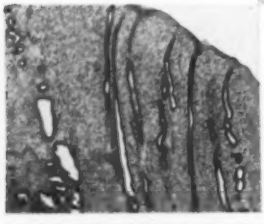


Color photomicrograph of endometrium during secretory stage.



Color photomicrograph of endometrium during proliferative stage.

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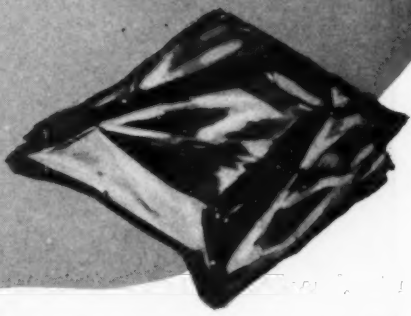

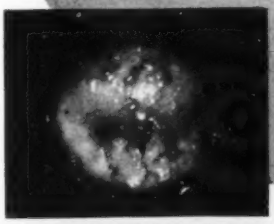

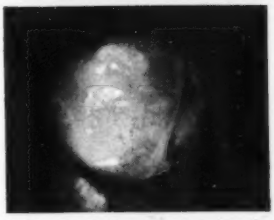

TOP: Cervix five minutes after insertion of Lorophyn Suppository. Photos by Dr. S. L. Siegler.

BOTTOM: Cervix four hours after suppository and coitus. Note persistence of the barrier film which occludes the uterine orifice.

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(1) Tuohy, E. L.: Handbook of Nutrition, J.A.M.A., 1943, pp. 365-384. (2) Piersol, G. M., and Bortz, E.: Ann. Int. Med. 12:964, 1939.

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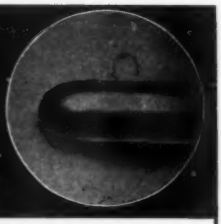

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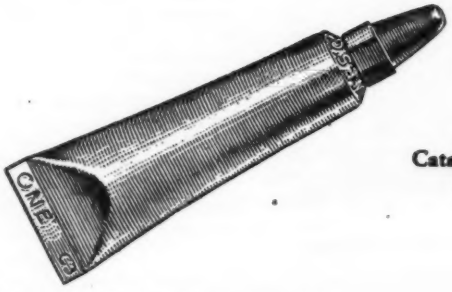

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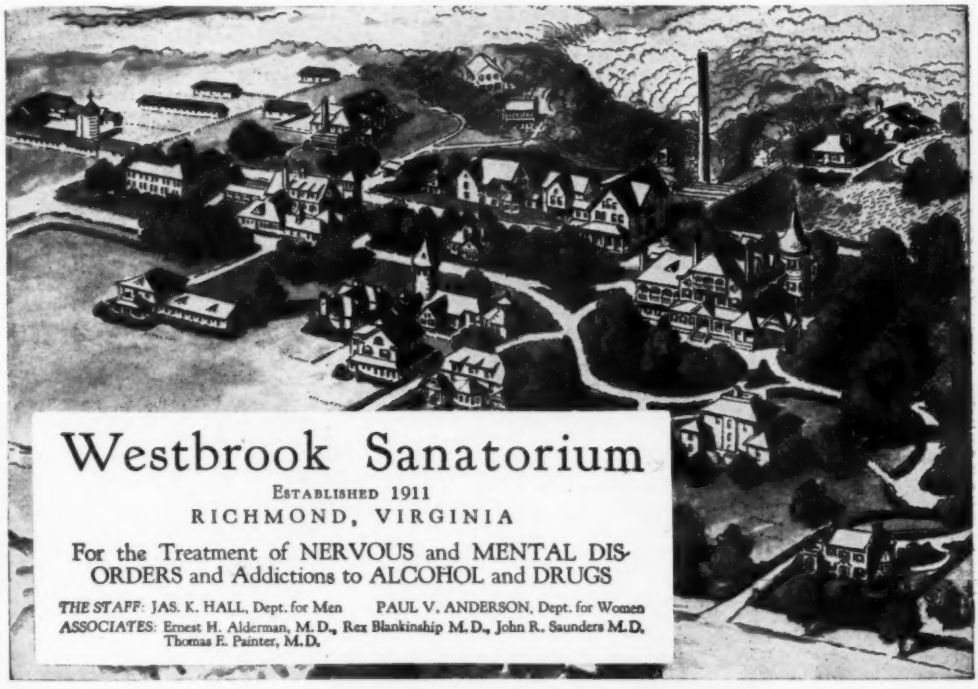

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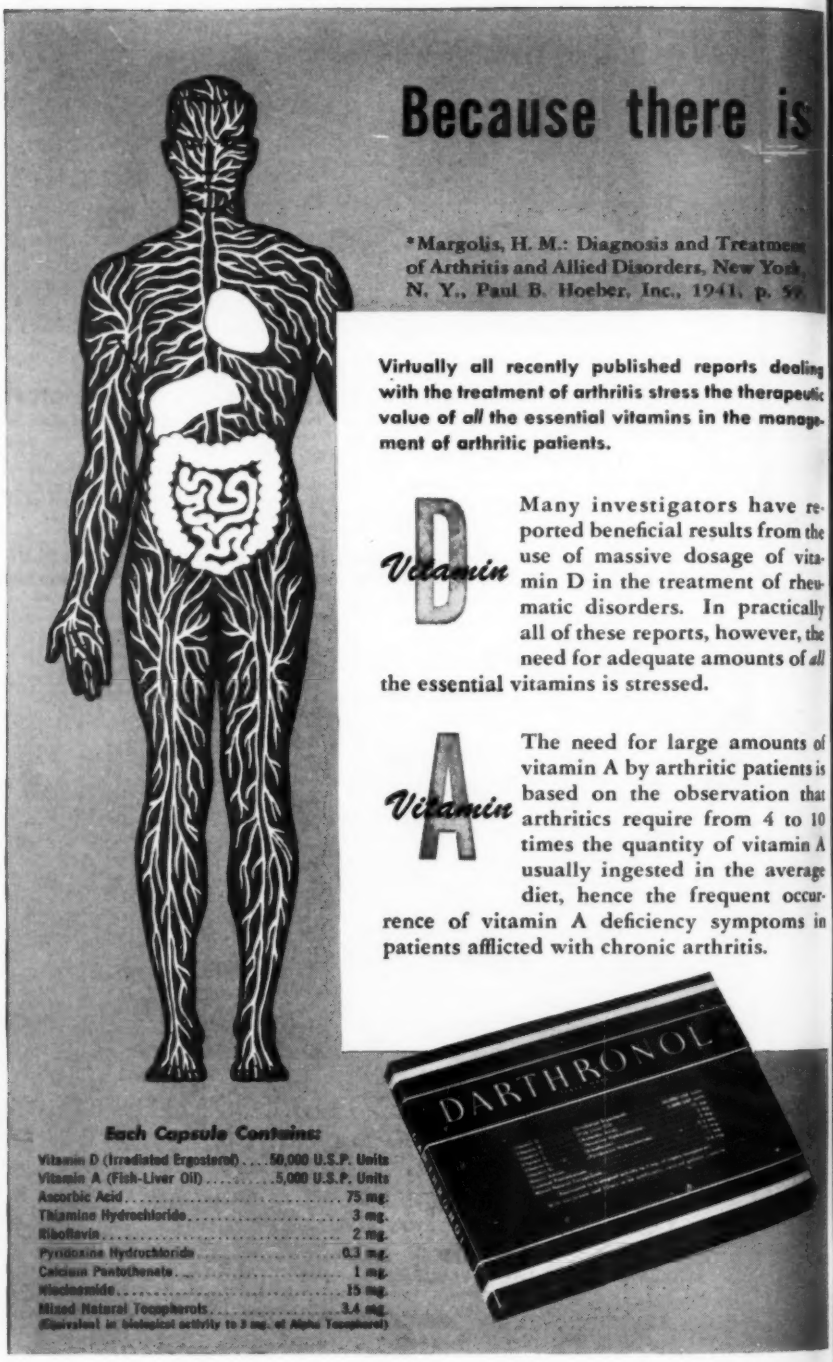
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*Margolis, H. M.: Diagnosis and Treatment of Arthritis and Allied Disorders, New York, N. Y., Paul B. Hoeber, Inc., 1941, p. 59.
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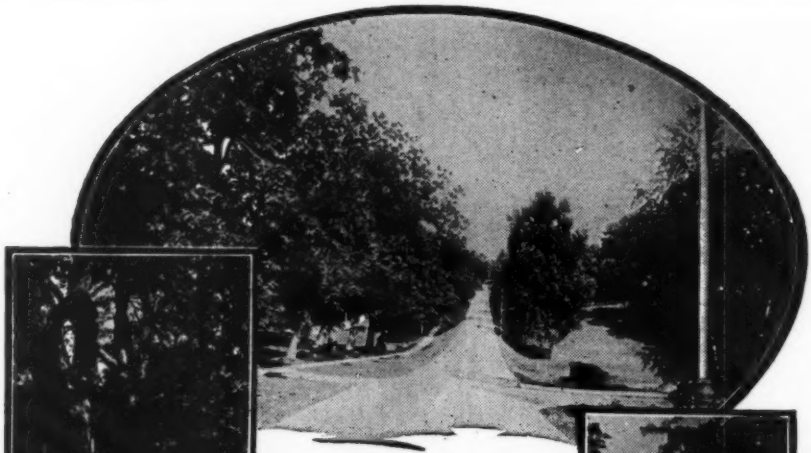

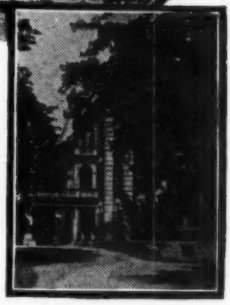

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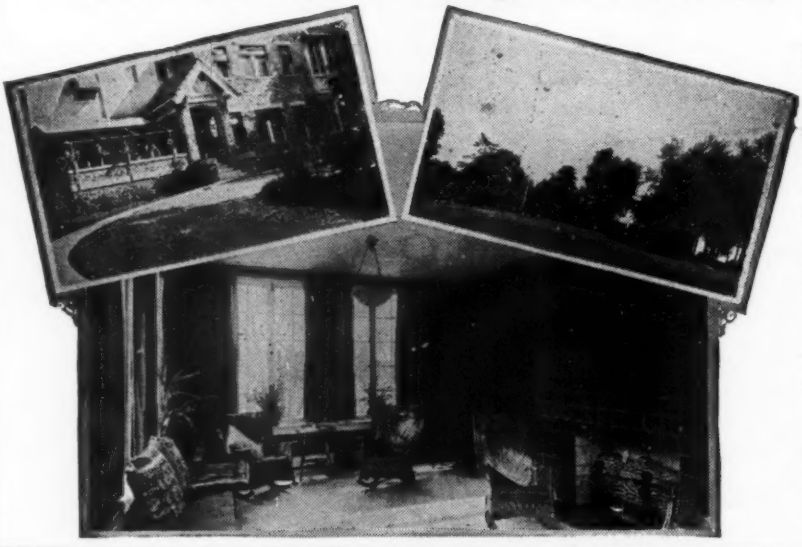

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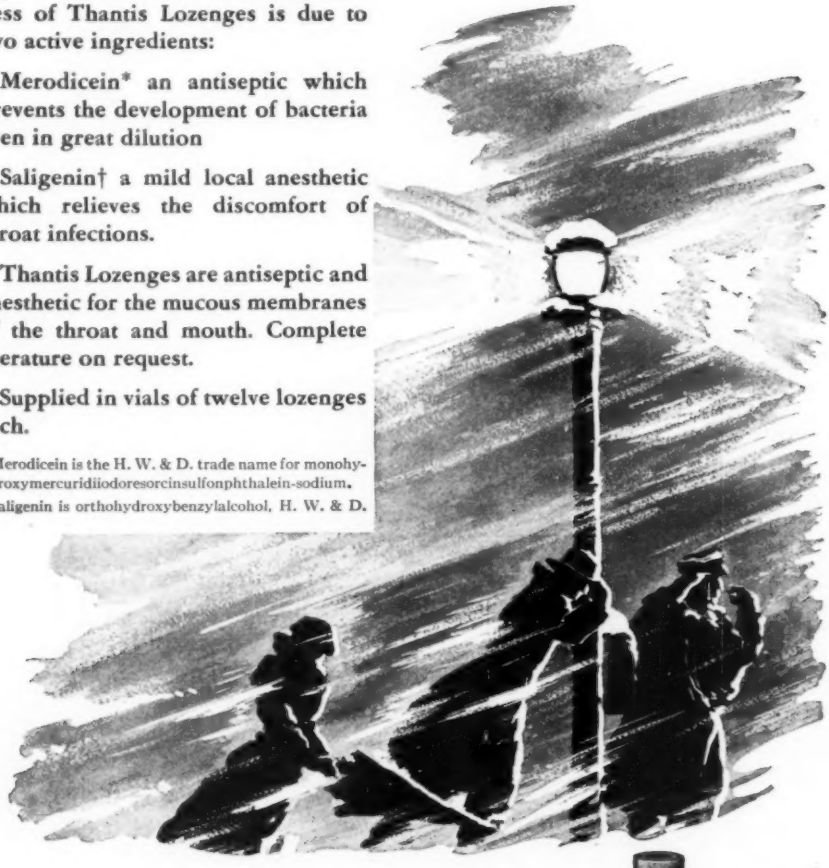

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THE EFFECT OF TRANSTHORACIC VAGUS RESECTION UPON PATIENTS WITH PEPTIC ULCER*

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INTRODUCTION

Within the past few years widespread interest has been aroused throughout the country in the treatment of peptic ulcer[a] by transthoracic resection[b] of the vagus nerves. This has resulted from uniformly favorable reports[2-9] emanating from various institutions, and echoed by the lay press. It becomes a matter of practical importance that careful follow-up studies of this operation be reported from time to time, pointing out both major and minor complications, as well as the beneficial effects of this procedure. The physiological basis for the operation has been discussed adequately in previous articles.[7 10] The purpose of this communication is to report the effect of transthoracic vagus resection upon the first fifty patients[c] treated in this manner for peptic ulcer at Duke Hospital.

MATERIAL

Each of these fifty patients had a chronic or recurrent ulcer which had failed to respond satisfactorily to previous medical or surgical treatment. Typical ulcer pain had been present in every case; in forty-two this was severe, often intractable. Twenty-five gave a history of repeated massive hemorrhage. The majority were partially or completely disabled because of their ulcer. Previous gastric surgery had been performed in nineteen patients, including gastroenterostomy, gastric resection, or closure of a perforation. The duration of ulcer symptoms ranged from two to thirty-five years, the average being eleven. Thirty-nine patients had a duodenal ulcer, seven a marginal, three a gastric, and one both a gastric and a duodenal ulcer. There were three white women and three colored men, the remainder being white males. The follow-up period of the patients reported in this series has ranged from two to twenty-seven months, the average being ten.

RESULTS

Forty-three of the fifty patients have made a complete clinical recovery to date and have been able to consume a full and unrestricted diet without ill effect. There has been one questionable recurrence and one postoperative death. Although the remaining five were relieved of their ulcer symptoms, they are considered to have obtained fair to poor results only because of gastric retention, vomiting, persistent diarrhea, weakness, nervousness, or other symptoms. It is of interest and of importance to note that two of this latter group were regarded

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(a) We wish to acknowledge the valuable assistance of Doctor Keith S. Grimson, Department of Surgery, Doctor Haywood M. Taylor, Department of Biochemistry, Doctor Frederick H. Hesser, Department of Neurology, and Doctor Wayne Rundles, Department of Medicine.

(b) As pointed out by Moore and others,[1] vagotomy is a misnomer, as is vagectomy, for an operation in which a portion of the vagus nerve is removed.

(c) Thirty of these have been previously reported.[9]

Patient	Age	Race	Sex	Location of Ulcer	Duration of Symptoms	Interval Since Operation	Ulcer Pain		Hemorrhage		Vomiting		Diarrhea		Disability	
							Before	After	Before	After	Before	After	Before	After	Before	After
1	36	W	M	Duodenal	14 years	27 months	+++	0	+	0	+	0	0	0	++	0
2	46	W	M	Marginal	20 years	25 months	+++	0	+++	0	+	0	0	0	+++	0
3	41	W	M	Marginal	12 years	22 months	+++	0	0	0	+	0	0	+	+++	±
4	42	W	M	Duodenal	11 years	22 months	+++	0	+++	0	++	0	0	++	+++	0
5	29	W	M	Duodenal	15 years	22 months	+++	0	0	0	0	0	0	0	+++	0
6	36	W	M	Duodenal	6 years	21 months	+++	0	0	0	0	0	0	+	++	0
7	36	W	M	Duodenal	10 years	20 months	++	0	0	0	+	+	0	++	+++	0
8	48	W	M	Marginal	7 years	18 months	+++	0	+	0	0	0	0	+	+++	0
9	35	W	M	Duodenal	8 years	18 months	+++	0	+++	0	++	0	0	0	++	0
10	38	C	M	Duodenal	6 years	18 months	+++	0	0	0	++	0	0	0	++	0
11	63	W	M	Duodenal	35 years	18 months	+++	0	0	0	++	0	0	0	++	0
12	41	W	M	Duodenal	3 years	17 months	+++	0	+++	0	++	0	0	0	++	0
13	44	W	M	Duodenal	6 years	17 months	+++	0	+++	0	++	0	0	0	++	0
14	31	W	M	Duodenal	3 years	17 months	+++	0	0	0	+++	++	+++	+++	+++	+++
15	28	W	M	Duodenal	4 years	16 months	+++	0	+++	0	++	0	0	0	++	0
16	30	W	M	Duodenal	7 years	16 months	+++	0	0	0	0	0	0	0	+++	0
17	29	W	M	Duodenal	10 years	12 months	+++	0	0	0	++	0	0	0	+	0
18	48	W	M	Gastric and Duodenal	3 years	11 months	+++	0	0	0	0	0	0	+	++	0
19	32	W	M	Duodenal	6 years	10 months	+	0	+++	+	0	0	0	+	++	0
20	31	W	M	Duodenal	15 years	10 months	+++	0	+++	0	++	0	0	0	+++	0
21	35	W	M	Duodenal	10 years	10 months	++	0	+++	0	++	0	0	0	++	0
22	52	W	M	Duodenal	15 years	10 months	++	0	+	0	+	+	0	++	++	0
23	46	W	M	Duodenal	10 years	9 months	+++	0	0	0	++	0	0	++	++	0
24	58	W	M	Duodenal	12 years	9 months	+++	0	0	0	++	0	0	0	++	0
25	46	W	M	Duodenal	19 years	9 months	+++	0	0	0	0	+	0	0	+++	0
26	51	W	M	Duodenal	13 years	8 months	+++	0	++	0	+++	0	0	0	++	0
27	64	W	M	Marginal	20 years	7 months	+++	0	+++	0	0	0	0	++	++	++
28	27	W	M	Duodenal	10 years	6 months	+++	0	+++	0	++	0	0	++	++	0
29	61	W	F	Marginal	16 years	6 months	+	0	+++	0	+++	0	0	++	+++	0
30	49	W	M	Marginal	12 years	6 months	+++	0	+++	0	+	0	0	0	+++	0
31	52	W	M	Duodenal	20 years	6 months	+++	0	++	0	+	0	0	+	+++	0
32	34	W	M	Duodenal	8 years	5 months	+++	0	0	0	0	0	0	++	++	0
33	32	W	F	Duodenal	2 years	4 months	+	0	+++	0	+	0	0	+	++	0
34	32	W	F	Duodenal	5 years	4 months	+++	+	0	0	+	0	0	++	+	0
35	24	W	M	Gastric	6 years	4 months	+++	0	0	0	+	0	0	++	++	0
36	32	C	M	Gastric	2 years	4 months	+++	0	++	0	+++	0	0	0	++	0
37	29	C	M	Duodenal	9 years	4 months	+++	0	0	0	++	0	0	+	++	0
38	47	W	M	Marginal	13 years	4 months	+++	0	++	0	0	0	0	0	+++	0
39	40	W	M	Gastric	13 years	4 months	+++	0	+	0	++	0	0	++	+	0
40	39	W	M	Duodenal	10 years	3 months	+++	0	++	0	+	0	0	+	++	+
41	53	W	M	Duodenal	10 years	3 months	+++	0	0	0	++	0	0	0	+++	0

Table 1

Patient	Age	Race	Sex	Location of Ulcer	Duration of Symptoms	Interval Since Operation	Ulcer Pain		Hemorrhage		Vomiting		Diarrhea		Disability	
							Before	After	Before	After	Before	After	Before	After	Before	After
42	41	W	M	Marginal	17 years	3 months	+++	0	+++	0	++	0	0	0	++	0
43	53	W	M	Duodenal	25 years	3 months	+++	0	0	0	0	0	0	+	++	0
44	40	W	M	Duodenal	4 years	3 months	+++	0	++	0	0	0	0	+	++	0
45	42	W	M	Duodenal	12 years	2 months	++	0	0	0	0	0	0	+	0	+
46	64	W	M	Duodenal	10 years	2 months	+++	0	0	0	+++	0	0	0	++	0
47	43	W	M	Duodenal	11 years	2 months	+++	0	0	0	++	0	0	+	++	0
48	34	W	M	Duodenal	4 years	2 months	++	0	0	0	+	0	0	++	++	0
49	58	W	M	Duodenal	12 years	2 months	+++	0	0	0	++	0	0	0	++	0
50	55	W	M	Duodenal	30 years	Pyloroplasty and vagotomy done simultaneously, died 16 days postoperative										

Duration of ulcer symptoms (average)—11 years.
Interval since operation (average)—10 months.

Table 1

preoperatively as psychopathic personalities with poor chances for recovery.

Typical ulcer pain occurred in every patient at some time before operation and in forty-two was severe (*Table 1, Chart 1*). Complete relief of pain has been experienced to date in all cases, except one. This patient (*No. 34, Table 1*), was relieved of all ulcer symptoms immediately after operation, but four months later developed mild, indefinite epigastric pain, which lasted only a few days. She felt that this was not the same type of pain experienced before operation, yet x-ray showed a tender, irritable bulb consistent with an active ulcer.

Twenty-five patients gave a history of repeated massive hemorrhage. In twenty-four there has been no recurrence of bleeding since operation. The twenty-fifth patient (*No. 19, Table 1*), who had a massive hemorrhage two weeks before operation, vomited a small amount of blood three weeks later. However, his hemoglobin and red count did not drop appreciably, nor did he have a tarry stool. He has been followed for ten months since this time and has had no further evidence of bleeding.

Thirty-six patients gave a history of vomiting. Since discharge from the hospital this has occurred occasionally in four, usually associated with over-eating and for the most part of no consequence. Another patient, one of the psychoneurotics referred to above, continues to vomit at frequent intervals seventeen months after operation, although x-ray shows no evidence of obstruction with a well functioning gastro-enterostomy.

A majority of the patients in this group were partially or completely disabled because of their ulcer, losing several weeks to several months from work each year. Since operation most of these individuals have resumed normal activity. However, seven patients are still partially disabled, complaining of weakness, easy fatigability, and other vague somatic complaints unrelated to their original ulcer symptoms.

Every patient in this series had been following the usual ulcer regime with various modifications. With the exception of four patients, they

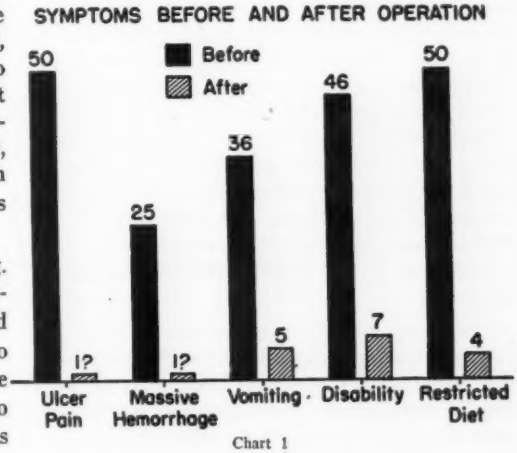

Chart 1

are now able to consume a full and unrestricted diet without ill effect. Because of vague digestive symptoms following ingestion of fried, fatty, or highly seasoned foods, these four patients still adhere to a somewhat restricted diet.

Without exception, all patients followed for more than three months have maintained or gained weight. The maximum gain was thirty-five pounds with an average of thirteen.

COMPLICATIONS

The most serious complication of vagus resection has been gastric retention associated with dilatation of the stomach and decrease in peristaltic activity. In the nine patients who had a functioning gastro-enterostomy this was no problem. Six others had a gastro-enterostomy or pyloroplasty at the time of vagotomy because of obstructive phenomena. Gastric retention following vagotomy was so marked in four patients as to require a secondary operation at a subsequent date. Approximately one-half of the remaining thirty-one patients complained of a sensation of fullness following meals and occasional regurgitation of food.

A less serious complication was diarrhea. This occurred in twenty-seven patients following operation but developed only when the patients began to eat a normal diet for the first time. This varied from two or three loose stools to eight or ten watery movements per day without blood or mucus, accompanied occasionally by lower abdominal discomfort. In nineteen this was transient, lasting only a few days. The remaining eight had an intermittent diarrhea, in some cases persisting for over a year after operation. There was no constant relationship between achlorhydria and the diarrhea, nor did the administration of acid have any appreciable effect in controlling it. X-rays of the stomach, small intestine, and colon have shown no correlation to the diarrhea. The stools did not resemble those of steatorrhea, and stool fat determinations on one patient were within normal limits.

Chest pain at the operative site was usually severe, requiring narcotics for relief for the first few days after operation. Even after several months some of the patients have experienced mild discomfort in the chest occasionally.

Accumulation of fluid in the left pleural cavity occurred in most patients in this series, but was of little or no clinical importance. Eleven patients developed postoperative pneumonia which responded satisfactorily to chemotherapy.

The one death in this series was a patient of fifty-five, who had had severe ulcer symptoms intermittently for thirty years. Because of retention phenomena, it was decided to do a pyloroplasty at the time of vagus resection. On the third postoperative day the patient's temperature rose to 39° C. with a pulse of 160. Portable film showed an area of pneumonia in the right lower lobe and the patient was started on penicillin. He continued to run an elevation of temperature ranging from 38 to 39°, became distended, and on the eleventh postoperative day the upper portion of the abdominal incision broke down, discharging a foul-smelling, thick, purulent material. In spite of supportive therapy plus a jejunostomy, he went rapidly downhill and died on the sixteenth postoperative day. Postmortem examination revealed atelectasis and pneumonia in the right lower lobe, plastic peritonitis, subphrenic abscess, and a one cm. perforation adjacent to the suture line in the first portion of the duodenum.

Distention of the stomach after vagotomy was perceived in all patients tested, either by inflation with air during gastroscopy or by distention with fluid. Traction upon the stomach by introducing the gastroscope beyond its usual depth invariably was accompanied by a sensation of stretching, pulling, or distress. Sensations of heat and cold were perceived by all patients tested. This was done by introducing hot or cold water into the stomach by nasal tube. However, the sensation was both epigastric and substernal and it was difficult to determine whether it arose from the esophagus or from the stomach itself.

Detailed studies of the effect of vagotomy upon the volume and acidity of the gastric secretion have already been reported.[2-5 7 8] Studies on the patients in this series, therefore, will be summarized only. The average volume of continuous twelve-hour gastric suction in 37 patients (84 determinations) before vagotomy was 725 c. c. Immediately after operation the average secretion of 40 patients (87 determinations) was 305 c. c. Three months later in 23 cases

(53 determinations) this was 320 c. c. (*Chart 2*). The average fasting free hydrochloric acid in 47 patients (140 determinations) before vagotomy was 33 clinical units. Immediately after operation in 48 patients (126 determinations) this was 6.3 units. Three months later the average in 28 patients (66 determinations) was 8.3 units (*Chart 3*). Immediately after vagotomy and in some cases extending over a period of several months there was no free hydrochloric acid in any of the fasting samples in twenty-four patients. Eight others showed an achlorhydria in the fasting samples after operation, but after a period of several months there was a return of free acid, though not to preoperative levels. In eleven patients there was definite lowering of gastric acidity, while in seven no effect whatever was noted. Thus, in eighteen patients free acid was present in all fasting samples obtained after operation.

The insulin test as described by Babkin,[12] Weinstein et alii[13] in our experience has yielded inconclusive results. There has been no constant correlation between the results of the insulin test and the change in volume or acidity of gastric secretion, the motility of the stomach, or the clinical effects.

The changes observed in roentgen studies were characterized by increased size, altered motility, and delayed emptying of the stomach. The effects upon the remainder of the gastro-intestinal tract were less obvious and studies pertaining to this aspect will be presented at a later date.

Varying degrees of dilatation of the stomach followed vagus resection, the minimal increase in size occurring in those patients with a gastro-enterostomy or resection. The majority of the cases without a functioning gastro-enterostomy had moderate to marked increase in size of the stomach after operation, while in four patients the dilatation was so extreme as to require gastro-enterostomy or pyloroplasty at a subsequent date for relief.

Changes in motility were significant and interesting. Following operation the waves in some instances disappeared completely so that

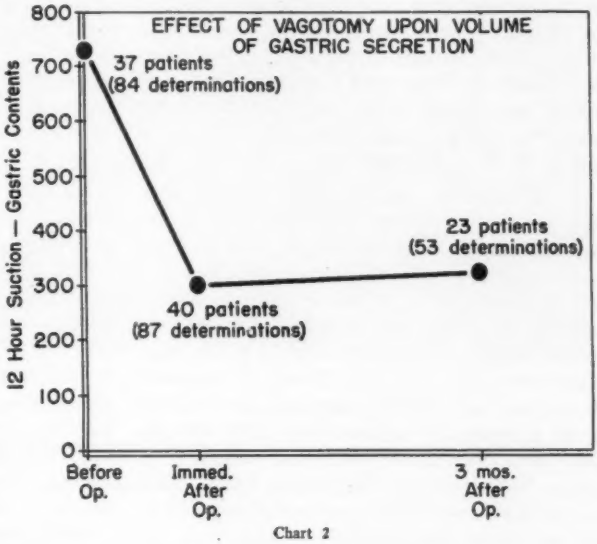

Chart 2

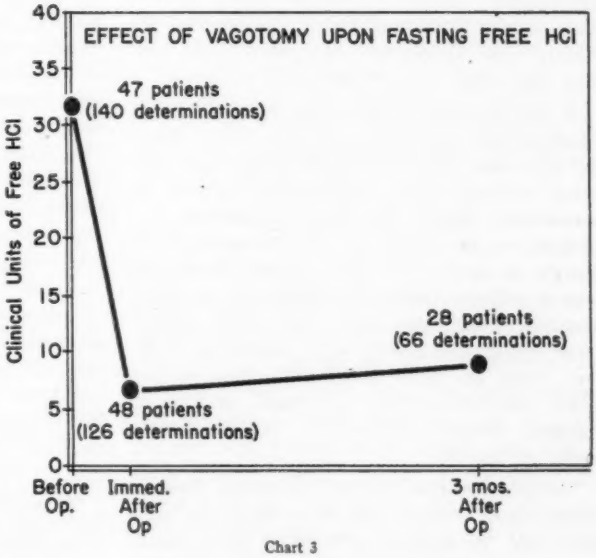

Chart 3

the barium-filled stomach resembled an enlarged, quiescent sac. Although peristalsis was present in many patients, yet certain striking alterations in the contraction waves were regularly observed in that they were slower in rate, decreased in amplitude, and less rhythmical. The contraction band, as it moved slowly down the stomach, singularly failed to constrict the barium bolus so that it was never separated from the rest of the contents. Hence, the peristaltic waves failed to propel the barium through the pylorus into the duodenum. Even when barium was observed leaving the stomach it seemed to get its impetus more from a "squeeze effect" than from propulsion by a constricting wave.

Gastric retention was a consistent finding after vagus resection. This phenomenon varied markedly, some patients showing 100 per cent six-hour residue and others practically none, usually being absent in those patients with a functioning gastro-enterostomy. Although the greatest degree of retention occurred in the large dilated stomach, it was also present in stomachs which were only slightly enlarged. In fact, one of the patients who showed very little enlargement and rather active waves had complete retention of barium for forty-eight hours. This and similar observations give added support to the contention that peristaltic contractions are significantly altered. However, other factors, such as scar formation, failure of sphincter relaxation, and defective reflex mechanism, may play important roles in delayed emptying.

It was frequently impossible to visualize the duodenal bulb following vagus resection. When the bulb was observed the same deformities seen before operation were still present though no spasm was noted. No point tenderness was elicited, except in one or two instances, even though a crater was still visible. One case showed indirect roentgen evidence of an active duodenal ulcer associated with mild clinical symptoms several months after operation. However, from an x-ray standpoint, most of the ulcers observed whether duodenal, gastric, or marginal healed satisfactorily within several weeks or months.

The late roentgen studies conducted three to twenty-seven months following operation indicated that the changes induced in the stomach have not disappeared, though perhaps in some individual instances they became less marked. Moreover, in certain cases these changes increased with the passage of time. Studies thus far indicate that, except for those cases which showed no change after operation, the gastro-enterostomy and resection group, none of the stomachs have returned to their preoperative state. Some may have become smaller, but on the contrary, others have remained large or become even larger. Furthermore, though many have shown some return of peristaltic action, the waves have not regained their constricting and propelling qualities and the retention has persisted in a large number of patients.

It is obvious that the greatest obstacle to complete recovery following vagotomy has been gastric retention. In an attempt to overcome this complication, several drugs, including mecholyl, prostigmine, and doryl, have been used with little or no success. Recently Machella and his associates[14] reported that urecholine (urethane of B-methylcholine chloride) was highly effective in the treatment of two patients with post-vagotomy retention. Since this report we have used urecholine in four patients with dramatic results. Two of these had been operated upon recently; one was four and the other eighteen months postoperative. Each of these patients had large, relatively motionless stomachs with marked gastric retention. Within five to ten minutes following the injection of five milligrams of urecholine large, effective peristaltic waves were observed fluoroscopically, beginning high in the fundus and proceeding rapidly through the pylorus with prompt emptying of the stomach (*Fig. 1*). These peristaltic waves persisted from thirty to forty-five minutes, following which the stomach again returned to a relatively inactive state.

Three hundred c. c. of 0.5 per cent hydrochloric acid were introduced into the stomach by nasal catheter in eleven patients. This procedure[11] will hereinafter be referred to as the "acid test."* Six of these patients had a duodenal ulcer, two a gastric, and three a marginal. Each of these eleven patients had a positive "acid

*The production of typical ulcer pain following the introduction of acid into the stomach will be referred to as a positive "acid test." Failure to reproduce ulcer pain in this way will be referred to as a negative "acid test."

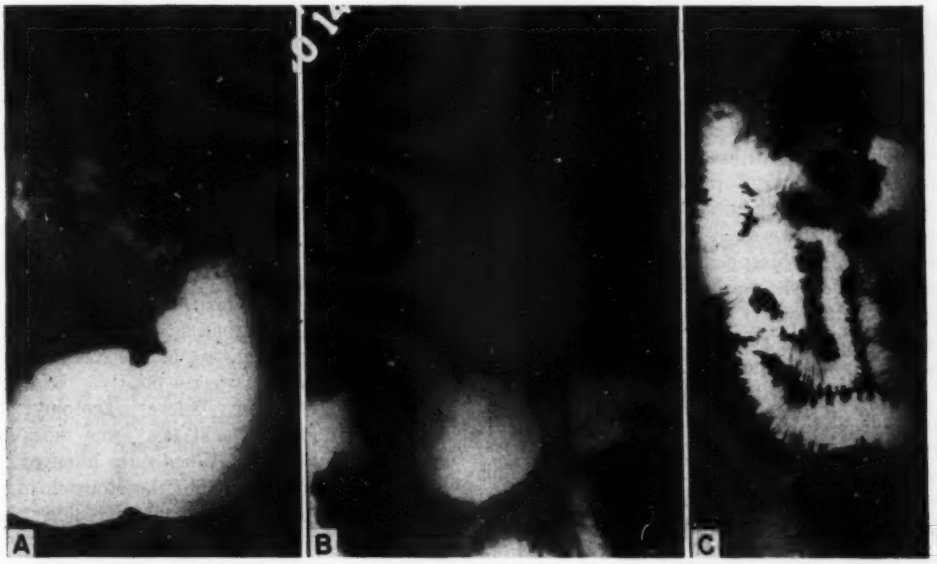

Fig. 1

(A) Patient No. 38. Four months after vagotomy. Large stomach with complete six-hour retention showing waves of low amplitude.

(B) Same patient after injection of 5 mg. of urecholine. Stomach shows vigorous waves. Emptying rapidly with filling of duodenum and upper jejunum.

(C) Same patient 20 minutes after injection. Stomach now completely empty. Note vigorous state of contraction of small intestinal loops.

test" on several occasions before vagotomy, but after operation the "acid test" was repeatedly negative in every case (*Table 2*).

A patient with a duodenal ulcer, who gave a strongly positive "acid test," was taken to the operating room and anesthetized in the usual manner, no operation being performed. The "acid test" was repeated as soon as the patient regained consciousness and pain similar to that before anesthesia was produced. Another patient with a duodenal ulcer was taken to the operating room and after a needle had been introduced for spinal anesthesia, the "acid test" was performed with the production of severe ulcer pain. Immediately spinal anesthesia was started with the pain continuing unabated until the anesthesia had reached the level of the sixth thoracic segment, at which time the pain abruptly disappeared.

"ACID TEST" FOR ULCER PAIN

(300 c. c. of 0.5 per cent H. Cl. introduced by nasal catheter)

Location of ulcer	Pain before operation	Pain after operation
Duodenal	6	0
Marginal	3	0
Gastric	2	0

Table 2

A third patient was given one hundred c. c. of 0.5 per cent hydrochloric acid, to which barium had been added, by nasal tube under fluoroscopic observation. It was noted that when the mixture entered the duodenum the bulb became spastic and the patient immediately complained of ulcer pain. Later the spasm relaxed and the pain subsided simultaneously. A fourth patient with a large channel ulcer was studied in a similar fashion. Although the crater was filled with the acid-barium mixture, no spasm was observed, there was no change in peristalsis, and the patient experienced no pain.

DISCUSSION

It is now well established that transthoracic vagus resection results in dramatic relief of pain in an overwhelming majority of patients having chronic, intractable ulcer. An adequate explanation for this observation is not only of academic interest, but also a matter of practical importance. As pointed out in a previous communication,[9] there seem to be four possible explanations for this phenomenon: (1) effect of anesthesia (ethylene ether); (2) interruption of sensory pathways; (3) decrease or absence of free hydrochloric acid; (4) alteration of peristaltic activity of the stomach.

As was pointed out above, a patient with a duodenal ulcer gave a strongly positive "acid test" both before and immediately after anesthesia, no operation having been performed. This is in keeping with the clinical observation that while ulcer pain may subside after anesthesia for other operations, relief is transient and symptoms soon recur. Thus, it would seem that the anesthesia is not the explanation for the relief of pain experienced by these patients.

The immediate and complete relief of ulcer pain which is dramatic in these patients would suggest that this might be due to severance of the sensory pathways. However, stimulation of the vagus nerves below the diaphragm under spinal anesthesia is not perceived by the patient. The demonstration in a patient that pain, produced by the introduction of acid into the stomach, is abolished by spinal anesthesia when the level of the anesthesia reaches the sixth thoracic segment indicates clearly that the vagus does not mediate pain arising from the stomach or duodenum. Furthermore, such sensations as distention of the stomach, traction upon the stomach, and apparently heat and cold are perceived by the patient after vagus resection just as before operation.

The marked decrease in total volume as well as the diminution or absence of free hydrochloric acid, which often follows vagotomy, would likewise suggest that this may be the explanation for the relief of pain. However, the fact that complete relief of pain was obtained in seventeen patients in whom free hydrochloric acid was present after vagotomy, seven of whom showed no lowering whatever in their degree of acidity, makes this assumption improbable. Moreover, the "acid test" repeatedly failed to produce pain in eleven patients after vagotomy, whereas before operation each of these had a strongly positive test. It has been suggested that the negative "acid test" noted in those patients with duodenal ulcer was due to the fact that the acid did not reach the ulcer crater because of delayed emptying of the stomach. Realizing the validity of this argument, the "acid test" was performed in three patients with a marginal and in two with a gastric ulcer. Each of these five patients had a strongly positive "acid test" on several occasions before vagotomy, but after operation the "acid test" was repeatedly negative in every case. When three hundred c. c. of acid are introduced into the stomach of patients having a gastric or marginal ulcer, there is little doubt that the acid will come in contact with the ulcer. Since the "acid tests" were carried out as soon as the patient regained consciousness and on several occasions thereafter, it is inconceivable that the ulcer would have healed so rapidly after vagotomy as to yield a negative test. It would seem, therefore, that there must be some other factor in addition to acid which accounts not only for ulcer pain before operation but also for the relief of pain after vagotomy.

The most constant effect of vagus resection is alteration of gastric motility, which has been observed in every patient in this series to a greater or lesser extent. The peristaltic waves in all patients are either abolished or markedly altered in that they are slower in rate, decreased in amplitude, and less rhythmical. This is usually accompanied by dilatation of the stomach and gastric retention of varying degree, except in those patients with a functioning stoma. Based upon these observations, it is felt that the most likely explanation for the immediate relief of pain and subsequent healing of the ulcer is this striking alteration in gastric motility.

CONCLUSIONS

(1) Forty-three of fifty patients have had

complete clinical recovery to date following transthoracic resection of the vagus nerves for peptic ulcer.

(2) The most constant effect of vagus resection is decreased gastric motility.

(3) Gastric retention and dilatation are likely to occur in patients who have not had a previous gastro-enterostomy.

(4) Decrease in volume and acidity of the gastric secretions usually follows vagus resection.

(5) The relief of pain following vagus resection probably is the result of decreased gastric motility rather than decreased acidity.

(6) The time interval is too short to draw any conclusions as to the permanent or lasting value of the procedure.

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DISCUSSION (*Abstract*)

Dr. Osler A. Abbott, Atlanta, Ga.—The group at Duke University is performing a very valuable service in giving us thorough and unbiased periodic follow-up reports concerning their experience and clinical investigations upon vagotomized peptic ulcer patients.

Our experiences with this procedure at Emory University have been limited since there are only seven patients in our present group. We have employed the usual indications in considering patients for this procedure, namely: (1) persistent pain without response to a proper medical or previous surgical regime; (2) repeated hemorrhage; and (3) marginal ulcer. We feel that this operation must be rarely and sparingly used in cases of gastric ulceration and then only in cases of small ulcers in the young patient with thorough direct investigation to rule out malignancy at the time of surgery. It is also our belief that this mode of treatment should not be used in bleeding cases wherein there is a question of moderate to advanced arteriosclerosis plus active hemorrhage. In dealing with patients at a Municipal Charity Institution we have been tempted to add another indication for this procedure, namely: the patient who after early social and psychosomatic investigation appears unable or unwilling to allow the usual preliminary medical regime a proper trial.

We now have a group of seven patients all having duodenal ulcer and operated upon from 1 to 10 months ago. In only one was there a significant preoperative history of vomiting. It has been recommended by Dragstedt that any patient presenting a history of vomiting to any significant degree be subjected to gastro-enterostomy at the time of vagotomy. This appears a reasonable therapeutic and prophylactic measure. In one instance there was considerable gastric retention and pyloric stenosis, so that at the time of vagotomy done transthoracically, the left leaf of the diaphragm was opened and a posterior gastro-enterostomy performed via this transpleural route. There were no postoperative complications and this patient is now asymptomatic six months following surgery, has gained 28 pounds in weight, has no free hydrochloric acid and has a good functioning stoma. A patient with marginal ulcer and five with duodenal ulcer without pyloric stenosis have been operated upon. The results in all have been most gratifying to date, there being almost complete reduction or absence of free hydrochloric acid and marked decrease in night flow. In our series the insulin test has shown evidence of complete vagal interruption in all cases. There have been no deaths nor serious postoperative complications. In a recent discussion of this topic before the Georgia Chapter of the American College of Surgeons, Dr. Frank Lahey expressed marked skepticism of the value of vagotomy for peptic ulcer and said there was an increasingly frequent demand for delayed gastro-enterostomy in these cases. Gastric resection has carried a very low mortality figure in his hands and he does not feel any real need for a change in his therapeutic approach. However, it is significant that he has recently instituted abdominal vagus section as a constant addition in his cases of subtotal gastric resection for peptic ulcer.

Certain technical factors we have felt to be of value in these cases. For the past year I have used "bromsalizol" block of the intercostal nerves in all cases of thoracic approach with marked decrease or absence of pain for the first 4 to 10 days postoperatively. With this aid extremely early ambulation and chest exercises have been made possible with marked decrease in delayed or late intercostal pain. This plus periodic endotracheal suction and, if indicated, pre- or postoperative bronchoscopy have resulted in almost complete eradication of pulmonary complications. All thoracic surgical cases receive pre- and postoperative prophylactic chemotherapy with marked resultant decrease in morbidity and mortality. We have stressed the thoracic approach with resection of the vagi from the level of the mainstem bronchus to the esophageal hiatus. This has emphasized in our experience the marked variations seen in the right vagus nerve, which often breaks up

into multiple filaments at a high level, some of which filaments may reach the stomach after a considerable course in the muscularis of the esophagus. The use of the thoracic approach then is emphasized because of (1) more complete and certain section of both vagus nerves (2) avoidance of the risk of postoperative abdominal adhesions or ventral herniae, and (3) this approach entails no additional risk to the patient in the hands of the thoracic surgeon. All chests receive closed water-seal thoracotomy tube drainage until x-ray evidence of complete re-expansion of the involved lung is obtained. If direct examination of the peritoneal cavity or gastro-enterostomy is indicated we do not hesitate to open the left leaf of the diaphragm. Continuous Wangensteen suction during the first five postoperative days is a real must in vagotomy.

In conclusion, one cannot help being impressed by the immediate benefits from vagotomy. Time alone plus careful investigations such as that of the Duke group will determine the future role of this method in the therapeutic armamentarium. The psychosomatic element is not eliminated and one must beware that interruption of this pathway of expression may later be replaced by new somatic disturbances unless proper attention to the psyche is maintained.

Dr. John Tilden Howard, Baltimore, Md.—When a patient comes to us with a peptic ulcer that should be treated surgically, he nowadays may present me with a copy of the article on vagotomy from *Time Magazine* and he may ask my opinion of the procedure as we discuss his therapy. I am sure that I am not unique in reporting such an experience and each of us must take a stand on our attitude at this time toward section of the vagi in the treatment of peptic ulceration.

Certainly vagotomy is a rational and a physiological operation for patients with intractable pain from ulcer, with repeated hemorrhages, when striking psychic factors are present, and for patients with gastro-jejunal ulceration. Alone it is not an operation for the treatment of peptic ulcer which has caused pyloric obstruction. Yet in spite of the theoretical indications, the present and possible future complications of vagotomy make me now consider it to be an experimental procedure.

I tell my patients just that when they ask about the operation. I do not say that vagotomy is no good and that it should be discarded. However, if transthoracic vagotomy is contemplated, I do feel that the patient should be told of the complications of gastric retention and of diarrhea and of the occasional need for secondary gastric resections or gastro-enterostomies. The manner in which an operation is proposed to a patient may decide for him whether or not he will have it. At this time I feel that it is only fair to tell of the possible unpleasant consequences of vagotomy, just as we can almost guarantee that the operation will relieve the patient of his pain. Influenced, I think, by my presentation of the facts, my patients of late have been choosing gastric resections.

And the procedure of simple gastric resection alone has not been too unsatisfactory in the treatment of peptic ulcer. That "barbarous" operation has cured at least 80 per cent of our patients who have submitted to it. When I advise an operation I am inclined to ask myself what surgical procedure I would want done to my ulcer if I had one. At this time I feel that I would take gastric resection alone rather than vagotomy alone. Perhaps my attitude is shortsighted but I believe that I share with the surgeon the responsibility for the postoperative course of patients in whom I have advised operations. Resected stomachs do well. When simple vagotomies have been done on more patients in Baltimore with satisfactory results, I may be more enthusiastic about the procedure.

Dr. Ruffin (closing).—It should be clearly understood that we do not recommend vagotomy as the treatment of choice for the usual peptic ulcer. All of us realize that most patients with ulcer will respond promptly to adequate medical therapy. Except in cases of obstruction or perforation, surgery is to be considered only in patients having intractable ulcer, in cases of repeated massive hemorrhage, or in those who cannot remain well while engaged in their usual activities. In olden days when surgery was advised, a simple gastro-enterostomy was usually performed, but because of poor results this procedure has been largely, if not entirely, abandoned. The next era of surgery for chronic peptic ulcer was subtotal gastric resection. For the most part the results have been good, but the mortality is fairly high, and marginal ulcers occasionally develop. And now resection of the vagus nerves is offered to the profession as a possible solution to the problem of chronic, intractable ulcer.

I am very much pleased to hear from Dr. Abbott that his results have paralleled ours closely, with complete relief of ulcer pain, gain in weight, and rehabilitation of the patient. I note with interest that Dr. Howard prefers subtotal gastric resection to vagotomy. Naturally this is a matter of individual preference but one could hardly argue that resection of the stomach is as simple a procedure as vagotomy, and should the dramatic recovery which regularly follows vagus resection prove to be lasting, there can be no question in my mind that this is the operation of choice when surgery for intractable ulcer is indicated.

Although distention of the stomach with marked delay in emptying was formerly a serious draw-back to the procedure, this complication can be prevented by the administration of urecholine which produces marked peristaltic activity and rapid emptying of a previously motionless stomach. The greatest care should be exercised in selecting patients for vagotomy. The operation should be fully explained to the patient and performed only in those who have failed to respond satisfactorily to conventional methods of treatment. It should be repeatedly emphasized that the procedure is still in the experimental stage and that too little time has elapsed to evaluate the permanent results of this operation.

CAUSES OF FAILURE IN GLAUCOMA OPERATIONS*

By BRITTAIN F. PAYNE, M.D., F.A.C.S.
New York, New York

Ophthalmic surgeons are often disconcerted over the poor results of their technically perfect operations for the relief of glaucoma. Many ophthalmologists are so busy with routine work that they have little time to follow their cases after enucleation and make careful studies of the sections of enucleated eyes to evaluate the final results of their operative efforts. Such studies might give clues to better operative technic and might be a means to preserve vision and prevent blindness. Although a laboratory equipped for the study of eyes may not be immediately available, it is possible to pack the eyes in fixatives and send them to one of several laboratories in larger centers. The ophthalmologist owes it to the patient, to himself and the profession to investigate and study the causes of failure in the operations he performs for glaucoma.

The ideal operation for glaucoma has not been devised as far as the laboratory is concerned. Whether it is injudicious selection of cases or defective operative technic the end result is often the same. The eye comes to the laboratory and when it is studied with the microscope, the observer is able to see why an operation failed. The type of operation may not have any special bearing on the outcome. In many cases iridectomy fails, in others the trephine fails and sections often show that the iris inclusion operation and the cyclodyalisis are unsuccessful.

The purpose of this paper is to demonstrate the causes of failure in some of the common operations performed for acute or chronic glaucoma. In order to show the histologic changes in glaucoma it is necessary to review briefly the microscopic anatomy of the normal globe.

THE NORMAL GLOBE

The eye is composed of a comparatively avascular fibrous tunic consisting of the cornea and sclera, both a millimeter or less in thickness, enclosing the uvea and the transparent contents of the globe. The lamina cribrosa is a continuation of the sclera to form a meshwork across the optic canal.

A cross section of the cornea shows that it consists of five layers and from without inward they are: the epithelial layer, Bowman's membrane, the stroma, Descemet's membrane and the endothelium. The normal cornea contains no blood vessels nor medullated nerve fibers.

Corneal epithelium is unique in that it is viable throughout its five layers of cells, including its most superficial squamous cells.

Bowman's layer is a thin homogeneous, acellular layer lying immediately internal to the epithelium and serving as a basement membrane for it. It gradually fuses into the underlying stroma and becomes one of its components.

The stroma consists of layers of specialized connective tissue, so interlaced that clean separation is impossible and it forms nine-tenths of the thickness of the cornea.

Descemet's membrane has inner cuticular and an outer elastic component and is quite resistant to trauma or disease.

The innermost endothelial lining consists of a single layer of flattened cells which become quite thin over the pectinate processes and the anterior surface of the iris.

THE LIMBUS CORNEAE

The limbus is a concentric segment measuring 0.75 mm. anteroposteriorly at the junction of the cornea and the sclera, and containing characteristics of each. The fibrous tunic is reduced in thickness in this area by the indentation of the scleral sulcus externally and the scleral furrow internally. The external sulcus is filled in with fine loose areolar connective tissue permeated by blood vessels which end in small capillary loops at the corneal margin. The surface is covered with thickened stratified squamous epithelium, which is arranged in folds and undergoing transition to bulbar conjunctival epithelium. The scleral furrow or the internal depression of the limbus is filled in with a meridional meshwork of endothelial-covered strands known as the ligamentum pectinatum. Schlemm's canal is in close relation to the outer bounds of the furrow. An-

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*From the Department of Pathology, New York Eye and Ear Infirmary, and New York University Medical School.

terior ciliary veins connect with the drainage channels which transport aqueous from the anterior chamber.

THE SCLERA

The sclera is that portion of the fibrous tunic which extends from the limbus corneae to the optic canal. It is composed of dense connective tissue and varies in thickness from 1 mm. at the posterior pole to 0.5 mm. beneath the insertions of the extraocular muscles. For descriptive purposes, the sclera has three layers: the loose, mildly vascular episcleral connective tissue; the dense, almost avascular, areolar connective tissue forming the middle and greater thickness of the structure; and the inner or "lamina fusca," which is only differentiated from the middle layer by chromatophores in its interspaces.

The lamina cribrosa is a web-like continuation of scleral fibers across the optic canal. It contains collagenous and elastic fibers intermingled with glial components. Normal horizontal sections through the optic nerve show that there is continuity in curvature of the cribriform plate corresponding to that of the sclera. It is evident that it is the weakest portion of the fibrous tunic and will be the first to become distended by pressure from within the globe.

THE UVEA

The uvea consists of the choroid ciliary body and iris. The choroid may be described as the vascular layer lying just internal to the lamina fusca of the sclera. It is composed of three ill-defined series of blood vessels as follows: an outer layer of large-sized blood vessels, a middle layer of intermediate-sized vessels and an internal layer composed of a single row of capillaries adjacent to the lamina vitrea of the choroid. Interspersed between these various layers of blood vessels are chromatophores and a fine reticulum of connective tissue and endothelial elements.

The ciliary body is composed essentially of the same layers as the choroid, but differs in that the ciliary muscle is interposed. The ciliary muscle is made up of three parts; an inner circular series of fibers connected with outer meridional fibers by a series of radiating fibers. The ciliary muscle gives size and shape to the ciliary body. Internal to the muscle layers are the continuations of the vascular choroidal layers with the exception of the chorio-capillaris. The pigment epithelium is a continuation of the pigment epithelium of the retina and the ciliary epithelium is the same as the retina reduced to a single layer of the non-pigmented cells.

The principal blood and nerve supply is from the long posterior ciliary vessels and nerves.

The iris may be divided into an anterior or mesodermal portion and a posterior or ectodermal derivative. The former consists of three ill-defined layers: the endothelium, the anterior border layer, and the vessel layer. The posterior portion of the iris is composed of a dilator pupillae and the pigment epithelium of the iris. The anterior endothelium is peculiar in that its surface is abruptly broken at the margins of the crypts and aqueous is permitted to come into direct contact with the stroma. The anterior border layer is characterized by a slight condensation of the fibrous tissue beneath the endothelium. The number of chromatophores contained in this layer determines the color of the iris, the more chromatophores the darker the iris. The vessel layer or the stroma of the iris is composed of delicate loose connective tissue supporting numerous blood vessels, which appear to have thickened walls. No elastic fibers are found in the iris except in the walls of the blood vessels and at its union with the ciliary body. The constrictor and dilator pupillae muscles are derivatives of the pigment epithelium and the latter forms the outer leaf or the ectodermal portion of the iris. The constrictor is easily seen in most preparations but the dilator is thin and obscured by the pigment epithelium or the inner leaf of the iris. The circulation is through the radicals from the greater arterial circle, which lies in the anterior part of the ciliary body and is supplied by the long posterior and anterior ciliary vessels.

THE RETINA

The retina is a thin transparent structure composed of 9 layers, the outermost being the rods and cones and the innermost being the internal limiting membrane. It lies in apposition but not attached to the pigment epithelium, a single layer of cells separating it from the choroid. The retina is anchored only at the ora

serrata and around the margin of the optic disk. It has a dual blood supply, the inner five layers receiving nutrition from the central artery and accompanying vein. The outer four layers are supplied by the choriocapillaris. The optic nerve begins with the papilla, a flat round projection just inside the globe measuring 1.5 mm. in diameter. It lies 1 mm. below and 3 mm. nasal to the posterior pole of the eye and corresponds to the intraocular portion of the nerve. The elevation is caused by an accumulation of nonmedullated nerve fibers from the ganglion cells of the retina. A central depression lies on the surface. It is in this depression that the central retinal vessels emerge. The fibers arrange themselves in the interstices of the cribriform plate and just posterior to it they assume medullation and become arranged into bundles. Posterior to the globe, the nerve is covered by the pial and dural sheaths, with the arachnoid lying between. At approximately 15 mm. posterior to the globe, the central retinal vessels enter the nerve at right angles and proceed forward in its center to appear in the depression of the papilla. The bundles are so arranged that regular rows of nuclei from the septa follow a course parallel to the long axis of the nerve. The blood supply is from the vessels of the sheaths, the central vessels and the circle of Zinn.

CONTENTS OF THE NORMAL GLOBE

The contents of the globe are the aqueous humor, the crystalline lens and the vitreous body. Under normal conditions, the aqueous does not appear in sections. The lens is often distorted in the process of fixation and staining. The vitreous may be displaced or compressed. In the presence of glaucoma all three of these elements may show definite changes which contribute to the pathological picture. The aqueous may show albuminous change with cells and fibrin in suspension, the lens may be pushed forward and swollen and the vitreous may contain fragments of pigment and other evidences of degeneration.

COMMON FINDINGS IN GLAUCOMATOUS EYES

A study of eyes enucleated after four common types of operations for glaucoma such as the iridectomy, iris inclusion operation, cyclodyalisis and trephine showed the following in common:

(1) Thinning of the fibrous tunic
(2) Changes in the corneal epithelium
(3) Congestion in the external sulcus and limbus
(4) Shallow anterior chamber
(5) Anterior peripheral synechiae
(6) Atrophy of the iris and ciliary body

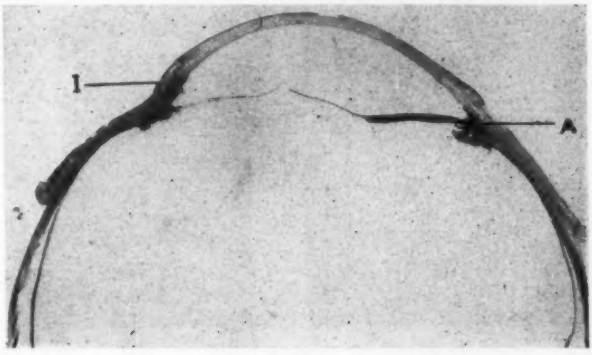

Fig. 1

Section of an eye enucleated after unsuccessful iridectomy operation for glaucoma. Crystallin lens removed at later operation. Synechia "I" not relieved by operation. Iris angle "A" blocked on opposite side.

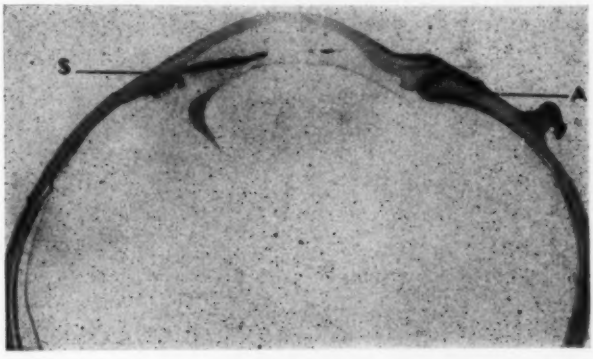

Fig. 2

Iris inclusion operation, showing the incarceration of the iris "A" within the new filtration channel, which has closed. Synechia "S" on the opposite side is extensive and prevents the escape of the aqueous.

(7) Changes in the crystalline lens
(8) Depression of the optic papilla
(9) Atrophy of the optic nerve
(10) Changes in the vitreous body

THE ENCULEATED EYE AFTER IRIDECTOMY

The general appearance of an eye removed after an iridectomy operation for glaucoma shows generalized thinning of the cornea and sclera, with a large bullous elevation of the epithelium near the center of the cornea. Although an operative coloboma of the iris is present, extensive anterior peripheral synechiae remain to block the iris angle. The anterior chamber is shallow and the optic disk is pathologically excavated.

A more intensive examination in the region of the operation shows edema and round cell infiltration of the limbus. The cornea is somewhat thinner than normal, and the epithelium forms a large bulla over the apex. Bowman's membrane is intact except in the region of the limbus, where pannus is beginning to form. The corneal stroma shows changes induced by tension. Descemet's membrane extends over the anterior surface of the iris, and the endothelium is covered with a thin layer of round cells, fibrin and pigment particles. The sclera is thinner than normal and shows little of importance. The iris is characterized by atrophy, broad anterior peripheral synechiae and pathological ectropion of the uvea. The iris stump extends far anterior to the filtration angle which has been closed by adhesions. The membrane extending over the anterior surface of the iris, and contributing to the ectropion, has firmly sealed any possible connection with the lower drainage spaces. The ciliary body shows atrophic changes and the choroid is flattened to a mere line by pressure and fixation. The optic nerve is atrophic and pathologically excavated. A glial mantle separates the vitreous body from the optic cup. The retina shows destruction of the ganglion cells and edema, especially in the macular area. The crystalline lens has posterior cortical changes with nuclear sclerosis. A fragment of iris remains on the anterior surface of the lens and is forming a capsular cataract. Careful study of this specimen indicates that the iridectomy failed to create a new drainage channel and the synechiae were undisturbed. The presence of a bulla contributed to the loss of the eye.

Fig. 3

The globe in section following an unsuccessful cyclodialysis operation "O" for glaucoma. Anterior peripheral synechiae "S" prevent aqueous drainage and the crystallin lens "L" is swollen and pushed forward.

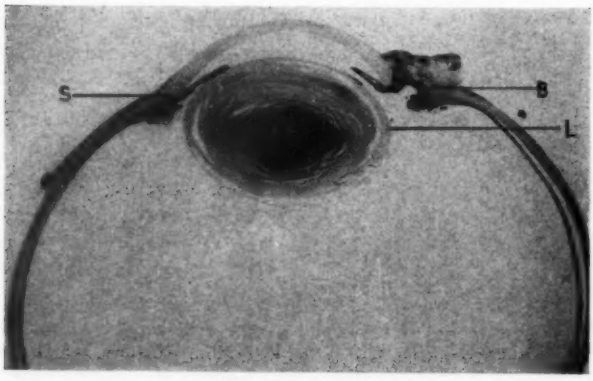

Fig. 4

Operative failure following an Elliot trephine, showing the iris included in a nonfiltering cicatrix "B," marked swelling of the crystallin lens "L" and an extensive synechia "S" on the side opposite the operation.

THE IRIS INCLUSION OPERATION

The description of a typical eye removed after an unsuccessful operation by iris inclusion will show atrophic uveal tissue in the operative wound, shallow anterior chamber and definite lens changes. Such an eye will show a filtration bleb permeated by congested vessels, infiltrated with lymphocytes and undergoing fibrotic changes. The ciliary processes and the iris limit the posterior margin of the wound and the crystalline lens is molded against its lips. There is no possible way for the aqueous to escape into the bleb. The anterior chamber is quite shallow and filled with fibrin and albuminous-like fluid. The corneal epithelium is well preserved and pannus is absent, but some interstitial inflammation is present. Descemet's membrane is intact, but the endothelium disappears in the adhesions and is covered by hemorrhage and pigment in the central region. The iris is atrophic and prolapsed into the wound. Broad anterior and posterior synechiae are present. The hemorrhagic condition of the iris extends back into the ciliary body and the choroid is congested. A pyramidal hemorrhage separates the macular area of the retina from the pigment epithelium and the choroid. The optic nerve is not included in the sections. The crystalline lens is swollen and is undergoing cortical cataractous changes.

Despite the loss of an eye after an iris inclusion operation the procedure should not be condemned. It is one of our most valuable operations and the chances are that any surgical procedure would fail in the eyes we see in the laboratory.

CYCLODIALYSIS OPERATIONS

Eyes submitted to the laboratory following cyclodialysis operations are usually complicated by other surgical procedures such as cataract extraction or glaucoma procedures. Examination of the area of the cyclodialysis shows a secondary closure with lymphocytic infiltration and fibrous replacement. The fibrous tunic is somewhat thinned, the anterior peripheral synechiae remain intact, the lens may be displaced forward and the optic nerve is atrophic. Further study shows congestion of the ciliary vessels, edema at the limbus and perineuritis. An excellent example of such an eye is one of the congenital glaucoma in which no other operation for increased tension complicates the picture.

GLOBES AFTER TREPHINE OPERATIONS

The general picture of eyes enucleated after unsuccessful trephine operations is illustrated by the following description of a typical failure.

The eye is hyperopic, the anterior chamber is shallow, the crystalline lens is swollen and the optic nerve is atrophic. The cornea is irregular in thickness. The epithelium is well preserved but slightly undermined by new blood vessels and connective tissue at the limbus. The stroma is moderately infiltrated in the periphery. Descemet's membrane is curled on itself near the operative wound, and the endothelium is covered with hemorrhage and fibrin. The operative wound is closed by dense connective tissue containing fragments of pigment, lymphocytes and new blood vessels. The filtering cicatrix contains fresh hemorrhage. The iris is atrophic and is closely adherent to the cornea on the unoperated side. A peripheral iridectomy has been performed as is shown by a part of the iris lying in apposition to the crystalline lens. The ciliary body and the choroid show atrophic changes with congestion of the blood vessels. The retina is undergoing degenerative changes with diffuse hemorrhage in its innermost layers. The optic nerve is excavated and atrophic. The crys-

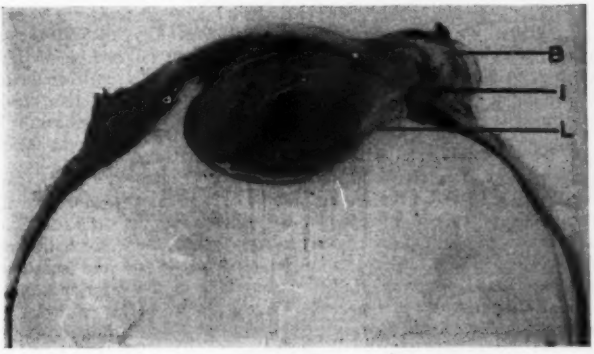

Fig. 5

An unsuccessful trephine operation, showing the bleb "B," with incarceration of the iris "I" and herniation of the crystallin lens "L" in the wound.

talline lens shows cortical cataractous changes with nuclear sclerosis. The lens capsule is in close relation to the filtration wound.

The loss of the eye was due to incarceration of ciliary processes and lens capsule. The new channel was blocked and the closure of the iris angle was not relieved.

CONCLUSIONS

(1) Ophthalmic surgeons are concerned over failures in technically perfect operations for glaucoma.

(2) A comparison of the normal histology of the eye with glaucomatous eyes usually shows the causes of failure.

(3) The iridectomy may fail because the root of the iris is left behind and the synechiae are not relieved.

(4) The iris inclusion operation may not persist as a permanent drainage channel.

(5) The cyclodialysis may be closed by inflammation.

(6) A successful trephine is subject to collapse of the bleb, late infection, and fibrotic closure.

(7) Most glaucoma operations, which are unsuccessful, fail because the iris angle is not restored.

(8) It must be remembered that only "failures" are seen in the laboratory and that most operations for glaucoma are successful.

DISCUSSION (*Abstract*)

Dr. Alston Callahan, Birmingham, Ala.—Will Dr. Payne tell us what glaucoma operation he performs on an eye with a tension of 35 mm. (Schiotz) and a 10° contraction of the field when the eye is not controlled by various types of medication?

Dr. W. R. Buffington, New Orleans, La.—Dr. Payne suggested a question relative to the colored race. It does seem to be a fact that the iris inclusion operation does not succeed as well in them as in the white race. I wonder whether he has compared the two races, the colored race and the white, from an anatomical or histological standpoint, and if there is anything in the eye itself that might be responsible for the failure of operations in the colored race.

Dr. K. W. Constantine, Palm Beach, Fla.—I have been very much interested in the iridencleisis operation for the relief of glaucoma for a number of years. I feel that failures in these cases are largely due to two inherited defects, faults that are inherited from the trephine operation. One of these is the flap. If you put down a conjunctival flap in the iridencleisis operation you are lost. The secret of success is Tenon's capsule, and one should not speak of a conjunctival flap, but of a Tenon-conjunctival flap. In the Negro race and in white individuals with very prominent eyes Tenon's capsule is thin, and flays out early, which makes no difference in an iridencleisis operation provided you do not carry your dissection too close to the limbus and get beyond Tenon's capsule, in which case you are likely to have the same trouble you have with the trephine operation. It does not make very much difference how far back you go, but it makes a big difference if you go too far forward.

Dr. Jervey, as you know, made his incision back of the ciliary body, pulling the iris through and he obtained some wonderful results, but that is a radical and unnecessary procedure. I would recommend going as far forward as you can with your incision just so you do not get beyond Tenon's capsule.

If you make a large Tenon's capsule-conjunctival flap the dissection is very easy. Then if you make your incision well forward but under Tenon's, pull the iris through the wound, bisect it, leaving it in the wound, and replace the flap with a running suture, the operation will be successful.

Dr. Angus L. MacLean, Baltimore, Md.—In the cyclodialysis operation, does the incarcerated iris act as a wick, and if so, what is its function there. What is the path of the aqueous flow?

Dr. Shaler Richardson, Jacksonville, Fla.—I would like to ask Dr. Payne if he thinks the cyclodialysis operation is the preferable one in aphakiac eyes. I would also like to comment, in answer to his question, as to a more effective operation for glaucoma in the Negro race, that it has been my experience that some types of iris inclusion operation is most effective.

Dr. S. B. Forbes, Tampa, Fla.—I would like to ask Dr. Payne about the onset of lenticular changes in the average case of iris inclusion: in other words, how long a period of time elapses before the lens develops opacities, particularly in comparison with the trephine.

I would also like to mention that in our practice in Florida, with reference to glaucoma in the Negro, our best result has been with iridencleisis combined with several wide corneoscleral bites with the scleral punch.

Dr. Payne (closing).—Dr. Forbes asked how long before we might expect a lens opacity to occur after iridencleisis operations. We might expect it if there is much trauma, or if we touch the lens in some way, or the lens touches the cornea. I think that we can look for and find opacities sometimes after the second or third dressing.

Almost every case that is operated upon for glaucoma is potentially a cataract-developing eye. Sooner or later most of them develop lens changes. Whether they go on to maturity or not, I am not in a position to say.

Some lens changes depend upon whether we touch the lens with a spatula or some other instrument or whether the lens comes in contact with the cornea abruptly.

There is a physiologic change. If the increased pressure that the lens has been subjected to is released by a glaucoma operation, it may be that there is a reversed action and perhaps more fluid gets into the capsule of the lens.

Dr. MacLean is in a better position to explain the role of the iris in inclusion operations than I am, but I am not sure that the iris does act as a wick for a certain length of time. The immediate effect is very much like the relief of pressure in an iridectomy, and then it must serve as a wick for a certain length of time, but we know that the iris atrophies as shown, by the sections we see in the laboratories. The iris certainly becomes atrophied and fibrosed, and sometimes we are aware of such changes in clinical practice. We can produce a bleb by pressing with the fingers, so that we know that actually the wound is acting as a channel of filtration.

Dr. MacLean.—I talked to Dr. Kronfeld in Chicago and I was very much surprised to hear him say that it did not; that it was the basal iridectomy that really accounted for the filtration in the iris inclusion operation. I wonder if you could tell us, if that is the case, why is the iris put there? What is its function?

Dr. Payne.—My interpretation, which may be entirely wrong, is that it is a wick, and I think that is yours, also.

Dr. MacLean.—That was the older theory.

Dr. Payne.—I do not know. Perhaps Dr. Callahan will ask the group if there are any newer theories.

Dr. Richardson mentioned cyclodialysis as being ideal or perhaps our best procedure in the relief of secondary glaucoma after cataract extraction. I think that it is almost the only thing we can do to get good results. We have some cases in which it has been quite satisfactory but others in which it has failed.

It was interesting to hear Dr. Richardson say that perhaps the iris inclusion operation is the best operation in the colored race for glaucoma. We have some cases which we inherited from Dr. Ben Witt Key's clinic and have followed. Dr. Key was not an admirer of the iris inclusion operation but occasionally, we were permitted to perform the operation with good results.

I am very grateful to Dr. Constantine for bringing out the fact that the Tenon's capsule is adherent and short in the case of the colored. This is new to me.

Dr. Buffington probably has had the opportunity to see more of these operations than anyone else, and in answer to him, I must say that I am guilty of not having studied enough normal eyes of the Negro in contrast with the white. We do not have many normal eyes in the laboratory. From the material we have at New York Eye and Ear Infirmary (and I dare say we have as much there as any other place in the country), we do not have enough normal eyes, white or colored, to make a comparison. Therefore, a comparison of the normal histology of the two, so far as I know, has never been worked out, and that should be an ideal subject for a thesis.

In answer to Dr. Callahan's question, the two operations to consider in a person who has an intraocular tension of 30 or 35 mm. hg. with the Schiotz tonometer, with a 10 degree field contraction, and does not respond to eye drops, are the iridencleisis or iridocorneosclerectomy operations.

THE ETIOLOGY AND TREATMENT OF CICATRICIAL STENOSIS OF THE LARYNX AND TRACHEA*

By FREDERICK A. FIGI, M.D.†
Rochester, Minnesota

The treatment of cicatricial stenosis of the larynx and trachea until recent years has been extremely difficult, and the results often have been unsatisfactory. During the past two decades correction of this condition has been greatly simplified, and the prognosis has improved markedly. Laryngologists generally now feel that an open operation offers the greatest, and at times the only, possibility of restoring the stenosed lumen. Experience has shown that opening of the larynx and trachea, excision of the scar tissue, correction of the distorted cartilage and relining of the tract with a skin graft will restore the airway in most of these cases. This is in decided contrast to the hopeless outlook in this condition prior to a few years ago.

The improved prognosis in these cases has resulted from (1) a better appreciation of the gross pathologic changes responsible for the stenosis, and (2) the application of the principles of plastic surgery in the correction of such changes.

Cicatricial stenosis of the larynx and trachea may result directly from acute infection, chronic inflammation, the effects of radiation and caustic agents, and also from self-inflicted, accidental and surgical trauma. Probably more often it follows perichondritis induced by these agents or factors,

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and fracture of the laryngeal cartilages. Indwelling nasal feeding tubes are an infrequent cause of the condition. After either fracture or perichondritis there may be loss of a varying amount of cartilage, distortion of these structures or malunion with overriding of the fragments. Compression of the thyroid cartilage or reduction of the diameter of the cricoid ring may thus result.

A study was made of forty-two patients with severe stenosis of the larynx and trachea taken care of at the Mayo Clinic during the past sixteen years, in order to determine the various etiologic factors involved and to evaluate the effectiveness of the different therapeutic procedures employed. Twenty-nine of these patients were males; thirteen were females. They ranged from six years to sixty-nine years old. The stenosis had been present for periods of a few weeks to nineteen years at the time the patients registered in the clinic. Generally, stenosis was of comparatively short duration when it was of traumatic origin, usually ranging from a few days or weeks to several months. It had been present for a few months to a year or two in most of the cases in which it had resulted from the removal of epitheliomas of the larynx, and it had existed for a number of years in some cases in which it had arisen from acute infectious processes and in the majority of those in which it had followed the treatment of multiple papillomas.

Fracture of the larynx and treatment of laryngeal tumors were responsible for the stenosis in twenty-five of the cases, fracture accounting for stenosis in twelve, treatment of papillomas in eight, and removal of epitheliomas in five. Other less frequent causes were streptococcic laryngotracheitis and diphtheria, which together accounted for stenosis in four cases; cut throat, accidental severing of the trachea and the use of an indwelling nasal feeding tube, each of which was etiologic in three instances. Tuberculous laryngitis induced the stenosis in two cases. In one case the condition followed an attempt at correction of the stenosis of postthyroidectomy bilateral abductor vocal cord paralysis. In another patient stenosis followed bronchoscopy for removal of a foreign body.

Automobile, airplane, industrial, and farm and home accidents were responsible for the laryngeal fractures. Perichondritis resulting from the injuries probably had been the chief factor in producing the stenosis in these cases, as it was also in those in which stenosis resulted from the treatment of laryngeal neoplasms and the use of nasal feeding tubes. Rehfuss or Levine tubes had been inserted after laparotomy was carried out, respectively, for acute appendicitis, volvulus and a pelvic condition, and had remained in place for ten days to three weeks. In all these cases hoarseness, pain on swallowing, edema of the larynx and respiratory obstruction developed in several days to a few weeks after removal of the tube. Emergency tracheotomy had been required in all the cases.

The attention of the medical profession was directed to the use of such tubes as a cause of perichondritis of the cricoid cartilage by Iglauer and Molt in 1939. Their report came as a startling revelation to many laryngologists, including our own group, who for years had frequently employed indwelling Rehfuss feeding tubes after radical operative procedures of the larynx and after other types of surgery. To date we have not encountered this complication in our own practice, and I am at a loss to explain its probable cause.

Regardless of the etiology of the perichondritis, a varying amount of cartilage usually is lost as a result of it. In our experience, stenosis of the larynx has been most severe when it was caused by irradiation. Irradiation often interferes with normal growth and produces diffuse, fibrocartilaginous thickening of the laryngeal cartilages. The stenosis may be due more to these factors than to scarring.

After fracture of the larynx, there may be contracture of the cartilaginous framework, as already noted. This change, combined with dense scarring within the larynx, frequently leaves a lumen only a few millimeters in diameter, or there may be complete atresia. Accordingly, endolaryngeal procedures are not likely to prove of benefit in these cases. As a matter of fact, attempts at stretching the scarring within the contracted, unyielding laryngeal wall by means of bougies or other types of dilators often produce additional scarring and further reduce the size of the lumen (*Fig. 1*).

A fundamental on which the success of many plastic procedures depends is the necessity of

furnishing a lining membrane in repair or restoration of the wall of a body cavity. Application of this fundamental to the treatment of cicatricial stenosis of the larynx and trachea has been one of the greatest advances in the therapy of this condition. The use of free skin grafts for this purpose was introduced by Arbuckle in 1930. Since then the procedure has been widely employed, and reports in the literature record almost uniformly satisfactory results.

Previously, Schmiegelow had dissected the stenosing scar from the airway through the incision made at thyrotomy, and had anchored a rubber tube in the lumen, with considerable success. The use of skin grafts in this connection was a logical sequence of this, together with the application of free grafts for restoration of the lining of the mouth and nose.

An interesting diagnostic problem at times is presented by the patients. Several in this group on indirect laryngeal examination appeared to have bilateral abductor vocal cord paralysis, and one had been advised to undergo lateral fixation of one vocal cord (King's operation) to remedy this. It was not until manipulation of the vocal cords had been carried out, with the use of sus-

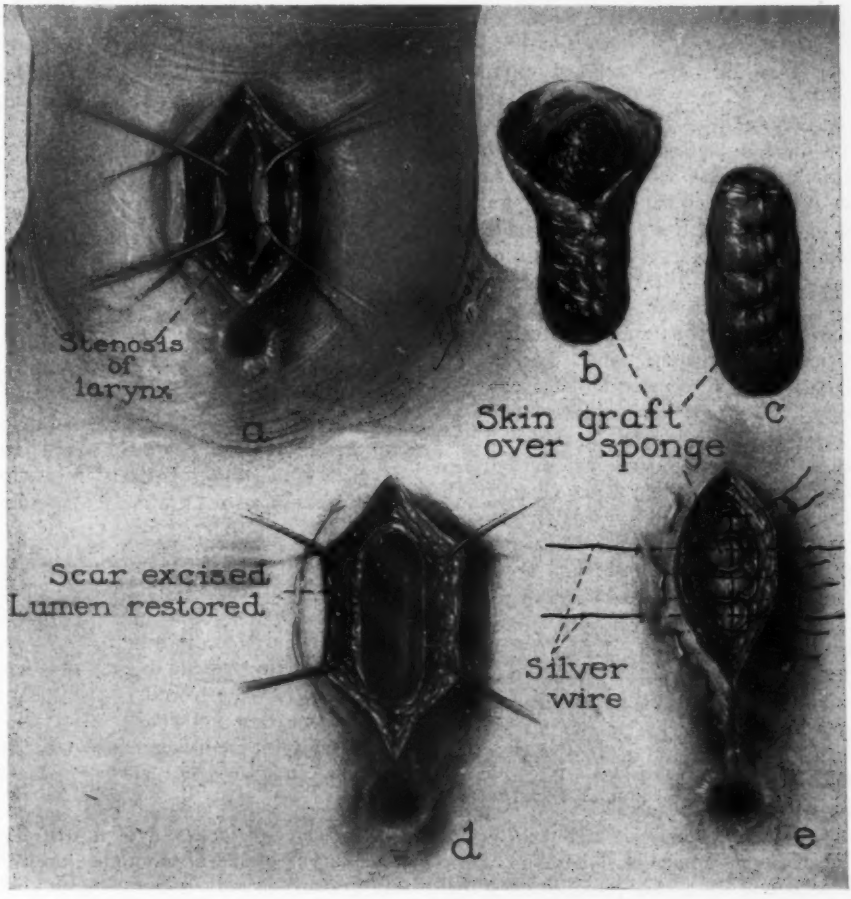

Fig. 1

(a) Marked stenosis of larynx caused by perichondritis resulting from irradiation for multiple papillomas; (b) and (c) mold of sponge rubber covered with skin graft; (d) lumen restored by coring out the fibrocartilaginous thickening; (e) the skin graft-covered mold has been anchored in the larynx and the wound has been partially closed.

pension laryngoscopy, that the presence of subglottic stricture was recognized.

Treatment of cicatricial stenosis of the larynx and trachea never should be undertaken until the etiologic factor has been brought completely under control. It is essential that all inflammatory reaction should have cleared entirely. If the stenosis is caused by tuberculosis, blastomycosis, syphilis, rhinoscleroma or other types of chronic granuloma, premature attempts at correction are not likely to be successful, and the original condition may flare into activity. Stenosis which follows the treatment of laryngeal neoplasms likewise must not be treated until there is reasonable assurance that the tumor will not recur.

In the group of cases reviewed, thyrotomy combined with excision of the scar and application of a skin graft was carried out in twenty-nine, continuous dilatation with or without incision of the scar was used in ten and repeated incision of a cicatricial diaphragm alone was performed in two. A patient, who had undergone thyrotomy and skin graft elsewhere, continued to experience respiratory difficulty due to persistent edema about the introitus of the larynx. This was relieved by the simple expedient of electrocoagulating the edematous tissue. The tracheal fistula was closed three months later. Another patient, a boy thirteen years old, had fallen six weeks before his admission to the clinic, striking his neck on the edge of a step, and had required emergency tracheotomy ten hours later. Complete laryngeal stenosis was present, but was not firm. With the use of suspension laryngoscopy, a small bougie was pushed through the closed lumen and this was followed by graduated soft rubber dilators. The patient wore dilators for three months, with complete relief of the respiratory obstruction. This tends to confirm a belief I have had for some time: that if a patient undergoes suspension laryngoscopy shortly after fracture of the larynx, and a soft rubber dilator is anchored in place, subsequent stenosis probably can be obviated. Preliminary tracheotomy of course would be required, and prophylactic penicillin therapy would be advisable. However, if a patient with this condition were not seen promptly, so much inflammatory reaction probably would be present that dilatation would serve to increase the trauma.

A man fifty years old had received an injury to the chest in an automobile accident ten months previous to the time he was seen at the clinic. Difficulty in breathing had developed three weeks later, and bronchoscopy had been done sixty times, resulting in some temporary relief from the respiratory obstruction. Examination showed a dense tracheal stricture at the level of the ninth ring. The trachea was opened, but the longest tracheal cannula did not extend to the level of the contracture. Accordingly, a soft intratracheal anesthesia tube was drawn snugly over the metal tracheotomy tube and anchored to it. The lower end of this rubber tube reached well below the site of stricture. The patient wore this tube continuously for eight months. Bronchoscopic examination a week after removal of the tube showed the tracheal lumen to be almost normal in size.

The situation of the tracheotomy may be an important factor in the persistence of stenosis of the larynx. It is a vital consideration in the treatment of cicatricial stricture. Laryngologists often observe patients for whom it is impossible to perform decannulation because the tracheal tube had been inserted directly into or immediately below the larynx; then they see the difficulty resolved when the cannula is lowered. In the treatment of cicatricial stenosis by the open operation, the tracheotomy tube must be at least one and preferably 2 cm. below the lower part of the stricture. Otherwise, it is likely to interfere with immobilization of the graft and with subsequent dilatation.

Thirty-three of the forty-two patients in this series were wearing a tracheal cannula at the time they came for consideration of their stenosis. For sixteen of these it was necessary to lower the tracheotomy opening before the stricture was explored. The two procedures can be carried out at the same time; otherwise, exploration must be delayed until the inflammatory reaction about the new tracheotomy opening has entirely cleared.

The technic of correction of cicatricial stenosis of the larynx by means of an open operation and skin grafting usually is not difficult, but it requires careful consideration of a number of details. After the situation and extent of the stricture have been accurately determined by direct,

indirect and retrograde examination and by radiographic studies, the larynx and if necessary the trachea are opened at this level. Many of these contractures are located at the glottis or in the subglottic region, so that access can be secured satisfactorily by means of thyrotomy. However, it often is necessary to divide the cricoid cartilage and one or more of the upper tracheal rings as well, in order adequately to expose and to remove the scarring. This is best done with the aid of cervical block anesthesia, but infiltration with procaine hydrochloride will suffice if a trained anesthetist is not available for the former procedure. The stenosing scar is excised as cleanly as possible. Any undue thickening of the cartilage also must be cored out (*Figs. 1* and *2*). Often, too, when stenosis has resulted from fracture, distortion or contracture of the cartilages may necessitate incision of

Fig. 2

The patient concerned in *Fig. 1*, nine years after correction of stenosis of larynx.

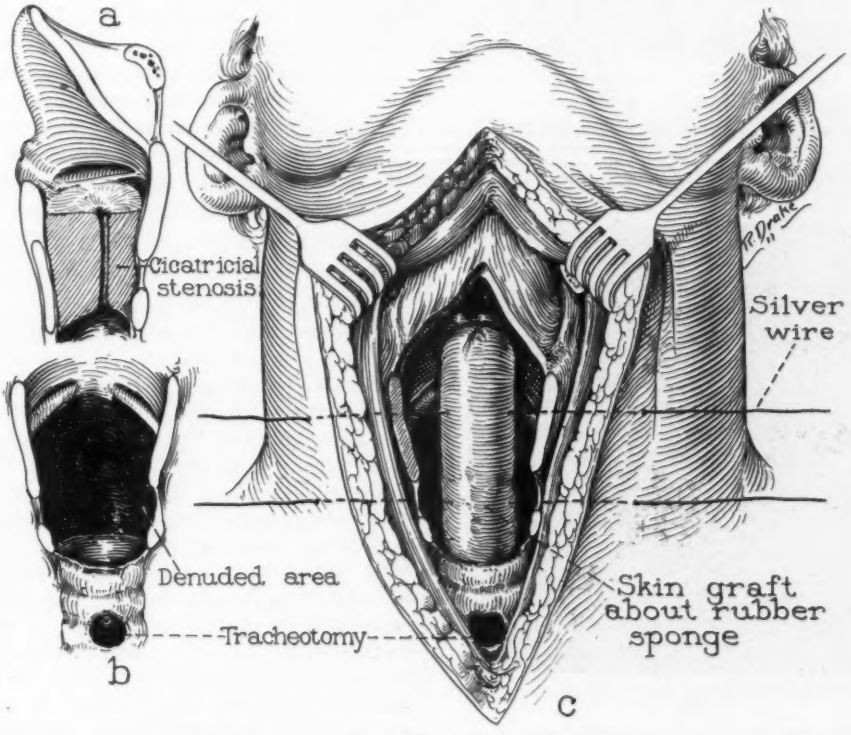

Fig. 3

(a) Extensive cicatricial stenosis in the subglottic region; (b) scarring has been excised; (c) skin graft supported by sponge rubber core has been anchored in the larynx by silver wires.

these structures vertically in one place or several places in order to spring them out into approximately their normal shape. Such extensive loss of cartilage may have occurred that the anterior portion of these structures is deficient and the divided ends are found to be widely separated when the lumen is re-opened. However, even when this was true, an adequate airway has been produced in most of the cases.

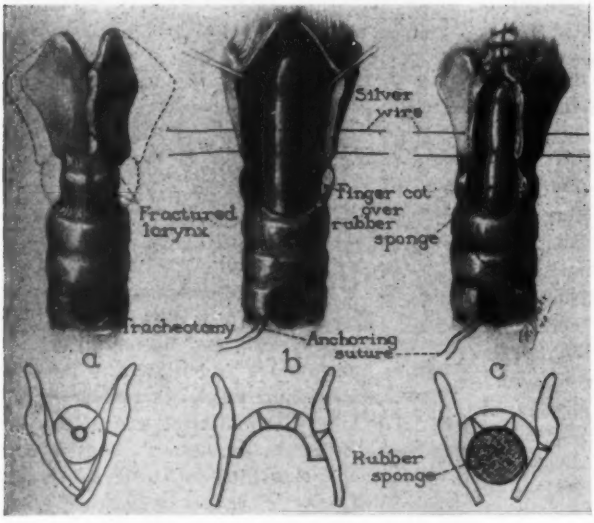

Fig. 4

Malunion after fracture of larynx, with loss of the anterior portion of the thyroid and cricoid cartilages in a man twenty-two years old (automobile accident eighteen months previously); (b) distortion of cartilage has been corrected by multiple incisions as shown in insert below; the stenosing scar has been excised and a rubber dilator has been inserted; (c) incision in thyrohyoid membrane has been sutured.

After the scar tissue (*Fig. 3a*) has been excised and the lumen has been opened up as much as possible (*Fig. 3b*), the field is in readiness for application of the skin graft (*Fig. 3*). Preferably the graft is obtained prior to exploration of the stenosed larynx and trachea, since the latter field is contaminated. A moderately thin, split graft removed with the dermatome from a non-hair-bearing surface is desirable. It is essential to avoid taking the graft deeply enough to include the hair follicles, for even though the donor area appears to be hairless, fine lanugo usually is present and transplantation often causes the grafted skin to develop a coarse growth in the new situation. Further experience has shown that the core of air-foam rubber sponge which I advocated several years ago[3] for holding the graft in place within the larynx and trachea is most satisfactory for this purpose, since it molds well to the irregular surface that is to be grafted. The graft is secured to this core by means of the rubber cement used on the dermatome drum, the raw surface of the skin being outward. The overlapping upper and lower edges of the graft are brought together with fine silk sutures. The core, covered by the graft, now is immobilized within the larynx and trachea by transfixing it with two silver alloy wires threaded on a long straight needle and passed directly through the skin, underlying soft tissues and the thyroid cartilage, or between the tracheal rings (*Fig. 3c*). Additional anchorage can be secured by means of a heavy silk suture passed through the lower portion of the core and tied to the tracheotomy tube, but this is not essential. The thyrotomy opening and soft tissues are then closed over this. As previously noted,

Fig. 5

Wound in the neck of a girl sixteen years old ten days after thyrotomy and skin graft for cicatricial stenosis of larynx. The original dressing has just been removed. The ends of silver wires which anchor the graft in place are shown.

the cartilages may be deficient anteriorly due to loss of a portion of these structures. In these cases the skin graft-covered core will bulge out between the ends of the divided cartilages. However, the soft tissues are brought together over the graft. The technic is the same as that depicted in *Fig. 4a, b* and *c*, except that in the figure a rubber dilator covered with a finger cot is represented. The silver wires can be clipped off and allowed to retract beneath the skin, but I usually prefer to leave them sufficiently long that they may be brought across the front of the neck to hold the dressing in place (*Fig. 5*).

Although as a rule comparatively little inflammatory reaction develops in these wounds postoperatively, it is well to administer penicillin prophylactically in order to be certain that such a reaction will be held at a minimum. At the end of approximately ten days the patient is anesthetized by pentothal sodium administered intravenously, and the larynx is exposed by means of the suspension apparatus. The upper end of the sponge-rubber core will be found to be uncovered, because the skin graft over this portion of it will have sloughed. The core is grasped with laryngeal forceps, the anchoring wires are severed and the core is withdrawn. In spite of the contamination present in this field, such grafts rarely fail to unite and grow perfectly. However, even though there have been complete union and growth, continuous dilatation for a period varying from a few weeks to approximately a year is necessary because of the tendency for the graft to shrink, and especially because of the lack of rigidity of the cartilage. In cases in which there has been no appreciable loss or distortion of the cartilage, insertion of a laryngeal dilator may not be required, but it is preferable to err on the safe side and to insert this for too long a period rather than for a period not long enough. Generally, I prefer a dilator similar to the core used to support the skin graft. This is covered with a rubber finger cot and is anchored in position in the same way as originally (*Fig. 6*). Being soft and elastic, it conforms to the irregularities of the interior of the larynx and trachea, and maintains constant, gentle dilatation so that one need have no fear of pressure necrosis. The patients return home with this in place, since they do not require any special care while it is being worn.

For some patients treated recently we have used a rigid obturator made of dental acrylic material (vernonite) as devised by Erich to maintain the patency of the restored lumen. This is advantageous if difficulty is experienced in keeping the dilator in position, and it does not develop the odor that tends to characterize the rubber dilator. However, it requires a large tracheal opening for insertion, and this opening may be difficult to close later because of the scarring often present over the front of the neck in these patients. Vernonite obturators were used in fourteen of the cases in this group. The length of time that dilatation was continued in this series varied from nine days to a year. Three patients wore a dilator for less than a month. Twenty-seven of the forty-two patients wore the dilator for seven months or less. In four cases it was worn for a year. All of the latter patients had had considerable involvement of the cartil-

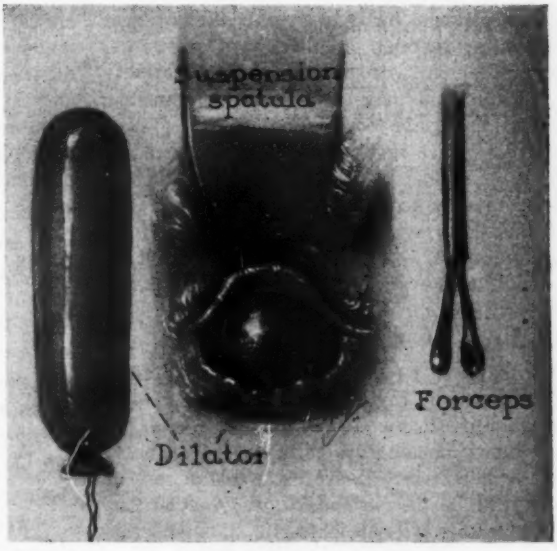

Fig. 6

Introitus of the larynx and upper end of rubber dilator exposed by means of suspension laryngoscopy. The mold supporting the skin graft has been removed and replaced with a dilator.

age. It seems probable that the use of dilatation might have been discontinued sooner in a number of the cases without jeopardizing the success of the final result. A patient, a boy seventeen years old, in whom stenosis had developed after fracture of the larynx two and a half years previously, was found to have extensive dense scarring in the larynx, with the arytenoid cartilages bound together and marked overriding of the fragments of the thyroid cartilage. After skin grafting and insertion of a dilator, he was sent home with instructions to return in four months. On the way to his home he coughed up the dilator, and for that reason returned to the clinic. Although only a month had elapsed since his operation, we found that there was no tendency for the stenosis to recur and the dilator was not reinserted. The tracheotomy opening was closed seven weeks later.

The results after treatment of cicatricial stenosis of the larynx and trachea by an open operation generally are highly satisfactory, as regards restoration of both the airway and the voice. Return of the voice depends on the extent of the loss of soft tissue and is unpredictable. Where there has been extensive destruction, the interior of the larynx is immobile and the vocal cords, ventricular bands and arytenoid cartilages are not recognizable, the likelihood of restoration of the voice is remote, and the advisability of attempts at surgical correction is questionable. Loss of the sphincteric action of the superior laryngeal orifice that probably has occurred in such a case might cause even greater difficulty postoperatively because of the tendency for food and fluids to gravitate into the lower part of the respiratory tract. In a patient with this type of condition operated upon by Nager it became necessary to reproduce the stenosis because of difficulty in eating and drinking.

Of the twenty-seven patients in the present series treated by thyrotomy, excision of the scar and skin graft, the airway is ample and the tracheotomy opening has been closed in twenty-two. A patient is still wearing a dilator, use of which will be discontinued soon. Another has an ample airway, but is fearful of having his tracheotomy opening closed because of previous experience in this connection. In another patient the respiratory tract is amply large but there is insufficient cartilage for support. This patient is wearing a valved tracheal tube.

Eight of the ten patients treated by incision of the scarring and insertion of a dilator are free from symptoms. The other two still require a tracheotomy opening.

As a rule, after restoration of the lumen of the larynx and trachea in these cases, no difficulty is experienced either with decannulation or with closure of the tracheotomy opening. Most of the patients are anxious to be rid of the tracheal tube, and are most cooperative. If there is no respiratory embarrassment when the cannula is corked continuously for several days, the tube is removed and a small gauze or adhesive covering is placed over the tracheal opening. If the tracheotomy tube has not been in place longer than three months, the tracheal fistula usually will close spontaneously. Removal of the cannula a day or two prior to closing of the tracheotomy opening greatly facilitates the latter procedure because the opening usually will contract down to a small fistulous tract during this interval. Then, with the aid of infiltration with procaine hydrochloride, a small cuff of scarred skin immediately about the fistula is turned in to form a lining, and the margins of the wound are closed over this after wide undercutting. A small amount of penicillin-sulfanilamide powder is dusted into the wound, a tight closure is made and a firm pressure dressing is applied. The pressure lessens the likelihood of the development of emphysema in case the patient coughs, and it prevents accumulation of serum or blood in the wound. Healing is thus hastened materially.

In some of the cases in which a vernonite obturator has been used, the surgeon will have to carry out multiple-stage plastic closure of the large tracheal opening that had been necessary for insertion and removal of the dilator. However, even a defect of considerable size usually can be repaired in a single stage by rotation of a sliding flap. Occasionally, difficulty in breathing will be experienced by the patient after such a closure, because of lack of rigidity of the flap. To forestall this, it is at times advisable to leave a small tracheotomy tube (size 1 or 2) in place for a few days. As a rule, this tube can be removed within a week without further trouble.

SUMMARY

In a group of forty-two cases of cicatricial stenosis of the larynx and trachea, fracture of the cartilages and previous removal of tumors were the most common causes of stenosis. Other less frequent causes were acute infections, self-inflicted and accidental severing of the trachea and the use of nasal feeding tubes.

The stenosis was treated by an open operation; that is, thyrotomy, excision of the scarring and skin graft in twenty-seven cases, by continuous dilatation with or without incision of the scar in ten cases, and by repeated incision of the cicatricial diaphragm in two cases.

Prolonged dilatation was carried out in all the cases after skin grafting.

For twenty-four of the twenty-seven patients treated by skin grafting the lumen is ample, and the tracheotomy opening has been closed in twenty-two patients. For eight of the ten patients treated by continuous dilatation decannulation has been carried out. Both of the patients treated by repeated incision of a cicatricial diaphragm have, at the time of this report, a free airway.

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DISCUSSION (*Abstract*)

Dr. Frederick A. Figi, Rochester, Minn.—Stenoses of the larynx after high tracheotomy are frequent but usually are not permanent. All of you, I am sure, have seen patients who required tracheotomy but in whom decannulation could not be effected, especially among children, because of the high site of the tracheotomy. In such cases, performance of tracheotomy at a site a couple of rings lower in the trachea, plus the passage of sufficient time, resulted in spontaneous clearing of the stenosis incident to the high tracheotomy.

I have never seen cicatricial stenosis of the larynx which followed a high tracheotomy unless it was evident that there had been excessive trauma at the time the tracheal tube was inserted.

Another question was: "Do a large percentage of leprous persons eventually have laryngeal stenosis? Have you ever operated upon such a patient?" I have seen very few patients with leprosy. I am sure that a number of you from the southern section of the country have seen many more than I have, and I would rather hear from some of you with more experience. I have not operated upon such a patient.

I have seen laryngeal stenosis which followed some of the other chronic granulomas, rhinoscleroma, blastomycosis, and tuberculosis, but not after leprosy.

I was asked: "If a sponge or plastic material is left in for six months, how can you determine whether the skin graft takes? If it does not take, will the tracheal lumen remain patent?"

Answering the first part of that question, at the end of ten days we remove the sponge rubber mold which was inserted to support the skin graft, and with the aid of suspension laryngoscopy we can inspect the grafted area and can see the take of the graft. Usually, these grafts take perfectly and there is no question as to whether or not the graft has taken.

Dilatation subsequent to that depends in general upon how much cartilage was destroyed by the process that induced the stenosis primarily. If there was no appreciable destruction of the cartilage and the stenosing scar was completely excised before the skin graft was applied, and take of the skin graft was obtained, it is not at all likely that dilatation will be required, certainly not for more than a couple or three weeks at the most. Even though the graft failed to take, if there was not too wide an area in the larynx or trachea that was denuded and the cartilaginous structures were intact, and if the soft rubber dilator was left in place for a sufficient period of time, I think the lumen would maintain its patency.

The Chairman.—Two questions were asked of Dr. LeJeune. I wonder if he would care to answer those for us.

Dr. Francis E. LeJeune, New Orleans, La.—I know nothing about leprosy.

The question that I asked Dr. Figi to answer was one that has perplexed us in a small series of cases that we have had. I have had occasion to do only eleven such cases as Dr. Figi has described this morning, where we had to do a thyrotomy with a skin graft. In the majority of those cases, we found a formation of scar tissue, which existed in the larynx prior to our going in and was partly responsible for the stenosis of the larynx. In those cases there was this dense formation of fibrous tissue on the posterior wall, inner wall, of the cricoid. That wall, that band of tissue, was intensely dense. It was fibrous tissue. One could hardly cut it with a knife. In many cases we had to use a rongeur to eradicate that tissue.

Again, that particular area was problematic in that as we used a skin graft over it in several cases the fibrous tissue mounted up again so as to form a shelf on the posterior wall. I wonder if Dr. Figi has run into such cases.

Dr. Figi.—I have not seen that type of patient, Dr. LeJeune, but from our experience with similar dense scars in other portions of the larynx that did not produce complete stenosis, I believe a soft elastic dilator anchored in the airway for a period of some weeks would smooth it out.

EXPERIENCE IN THE EXTRACTION OF URETERAL CALCULI WITH A BALKUS LOOPED CATHETER*

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The purpose of this report is to discuss the experiences in the use of a looped catheter for the extraction of ureteral calculi over a period of two years, during which time 23 stones were extracted.

In 1943, Balkus[1] described a catheter which he called a looped catheter. An ordinary ureteral catheter is threaded with stainless steel wire in such a manner that the tip can be doubled back, or looped, upon itself after the catheter has been inserted up the ureter. When the catheter is being withdrawn from the ureter, the stone may become engaged in the loop without further manipulation by the operator.

Some x-rays made during a cystoscopy will illustrate the mode of action of a looped catheter. *Fig. 1* shows ureteral catheters placed up each ureter. There is a small calculus in the right lower ureter. *Fig. 2* shows bilateral retrograde pyelo-ureterograms which further identify the calculus in the right lower ureter. *Fig. 3* shows a looped catheter engaging the stone. Subsequently, traction was applied to the catheter, which was withdrawn from the ureteral orifice under vision through the cystoscope. After removal of a stone, it has been customary to insert a small catheter in the ureter to facilitate drainage until edema and spasm have subsided. The catheter was usually left indwelling for 24 hours.

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There is one requirement in all cases for the successful use of the looped catheter. It must be possible to pass the catheter up the ureter beyond the stone. In the cases in this report, difficulty in manipulating the catheter up the ureter varied from slight resistance to complete obstruction. A little patience sufficed in most instances.

Early in the use of the catheter, it was found inadvisable to rotate or twist the ureteral catheter while trying to ascend the ureter. When the catheter was rotated, the two wires in the lumen often became twisted around each other so that it was very difficult to loop the catheter. One of the first and most important factors learned was to avoid twisting or rotating the catheter during attempts to pass an obstruction.

In every case in which an ureteral calculus is suspected, the looped catheter is the first instrument inserted into the ureter. The decision to do this resulted from the following case:

A. J., a young white man, was cystoscoped because of a tentative diagnosis of a non-opaque calculus in the left ureter. The history was suggestive of an ureteral colic; there was microscopic hematuria, a scout x-ray film showed an enlarged left kidney shadow but a calculus could not be identified. An ordinary No. 5 F ureteral catheter was passed up the left ureter. There was a temporary obstruction at 2.5 centimeters, after which the catheter was passed to the kidney pelvis. There were 30 c. c. of dark urine in the left kidney. A pyelogram was made, after which the catheter was removed with the intention of using a looped catheter. Evidently the trauma of the first catheter was sufficient to initiate a spasm of the ureteral muscle at the site of the stone for, subsequently, no catheter or bougie could be manipulated by the obstruction, either then or during a subsequent cystoscopy. The patient passed a small black calculus spontaneously three days later. If the looped catheter had been inserted first, he might have been spared a considerable amount of pain. Since that time, if a calculus is suspected, the looped catheter is used first. Residual urine drains readily and satisfactory retrograde pyelograms can be made through the looped catheter.

If the looped catheter could not be passed during the first cystoscopy, the patients were given deep "pentothal" sodium anesthesia during the next cystoscopy, in the hope of relaxing a spastic ureter. In four cases the anesthetic did not relieve the obstruction. In eight cases, the looped catheter was passed beyond the previous obstruction and the stone was extracted. One patient was given an anesthetic twice. This case warrants reporting.

A. C., a white man, age 49, was admitted to Jackson Hospital three days after the onset of right ureteral colic. An x-ray showed a calculus 0.5 cm. in diameter in the upper right ureter. During cystoscopy under three grains of "seconal," it was impossible to pass any catheter by the calculus. He was afebrile and tolerated the intermittent pain well. Two days later, cystoscopy under "pentothal" anesthesia was again unsuccessful. Two days later, he began to have 3 or 4 degrees of fever. He was prepared for a right ureterolithotomy to be done on the morning of the fifth day in the hospital. On the way to the operating room, he was taken to the cystoscopy room, given a deep "pentothal" sodium anesthetic and cystoscoped. The looped catheter was passed to the kidney without much difficulty, looped and withdrawn, bringing with it the calculus. A number 6 ureteral catheter was inserted up the right ureter to permit drainage until the edema subsided. The patient left the hospital 48 hours later.

Of the four cases in which the looped catheter could not be passed during cystoscopy under anesthesia, one patient subsequently passed a calculus spontaneously. Ureterolithotomy was done on the other three patients. These cases were all larger stones and were treated after some experience with the looped catheter had been gained. It is possible that one becomes bolder and attempts the impossible. Certainly there is a limit to the size of the stone which can

Fig. 2

Shows bilateral retrograde pyelo-ureterograms which further identify the calculus in the right lower ureter.

Fig. 1

Shows ureteral catheters placed up each ureter, identifying a small calculus in the right lower ureter.

Fig. 3

Shows a looped catheter engaging the stone which was extracted.

be removed, although the following case shows that it may be quite large.

H. F., a fifty-nine-year-old white man, had passed 18 or 20 stones during a period of 30 years, and was not alarmed over another colic. He had had mild intermittent pain in the left loin for 3 days before he sought medical aid for relief of increasing though not severe pain. An x-ray (*Fig. 4*) revealed a stone 1 cm. in diameter in the left upper ureter, three similar sized stones in the bladder, and 4 or 5 tiny stones in the region of the lower pole of the left kidney. Although the patient had not much pain over the week end, an excretory urogram (*Fig. 5*) showed that the ureteral calculus had progressed 8 inches down the ureter in 2 days. The situation was very calm for 3 more days, when he began to have a low grade fever. Cystoscopy was done and a looped catheter inserted easily. When the loop was made and tension applied, it was found that the stone could not be moved. An x-ray (*Fig. 6*) showed the catheter near the stone but not apparently engaging it. However, mild tension was applied to the catheter through the medium of a rubber band attached to a bandage below the left knee. The following morning the catheter was pulled rather firmly and came out of the ureter, bladder and urethra. An x-ray (*Fig. 7*) showed the stone in the bladder.

Fig. 4

An x-ray showing a stone 1 cm. in diameter in the left upper ureter, three similar sized stones in the bladder and some tiny stones in the region of the lower pole of the left kidney.

Although this case represents the extraction of a relatively large ureteral calculus, it does not indicate that stones of this size can usually be extracted. It is probable that some of the failures in this series have been due to attempts to do the impossible. This factor should not, however, detract from the value of the looped catheter in the extraction of ureteral calculi.

In one case, the stone could not be extracted from the ureter, even though very strong traction was applied for 24 hours. The stone was actually pulled down to the bladder neck, where it could be palpated by rectum. A panendoscope was inserted alongside the catheter and inspection revealed a bulge in the intramural portion of the ureter. Using a Colling knife, the ureteral orifice was incised, permitting easy extraction of a fairly large calculus.

In another case, a calculus engaged in the loop was caught in the intramural portion of the right ureter. The patient was a woman and, by inserting a finger in the vagina, the stone was expressed from the ureter, under vision, between the beak of the cystoscope and the finger, while an assistant maintained tension on the catheter.

Fig. 5

An excretory urogram shows that the ureteral calculus had progressed down the ureter spontaneously, in a few days and without much pain.

In five cases it was thought advisable to apply mild tension for some hours, rather than to try to extract a stubborn stone in the cystoscopy room. Such traction was applied by attaching the catheter to a rubber band which was, in turn, wrapped around a safety pin attached to a bandage encircling the leg just below the knee. The patient regulated the traction by flexing or extending the leg, governing the tension by the degree of pain. The method has proven satisfactory. During the period of tension, urine drained around and through the catheters, providing adequate relief of obstruction. Once the calculus is engaged in the loop, it is surprising how much tension the patient will apply in an effort to rid himself of his tormentor.

In only two cases did the stone, once engaged in the loop, slip out. One patient was a man and the stone was securely engaged twice, only to slip off both times. The other patient was a woman. Both stones were in the lower inch of the ureter and both were relatively large. Neither patient passed the stone before returning to their northern homes, since when they have not been heard from.

Fig. 6

Showing the catheter loop near the stone in the left ureter. Although not apparently well engaged, the stone was pulled into the bladder when the catheter was removed.

In most cases, once the stone was engaged, it was extracted without taking x-rays. However, if the sensation transmitted to the hand suggested that the catheter might be fouled in the ureter, x-rays were made to investigate. *Fig. 9* shows such a film made for safety. The patient was an 18-year-old girl who had had a stone removed surgically from the left upper ureter a year previously. In the office an attempt to pass a catheter by the stone failed. A pyelogram (*Fig. 8*) was attempted but the dye did not pass the stone. She was sent to the hospital, given "pentothal" anesthesia and the stone was engaged. Because there was a sense of unusual resistance in the lower ureter, an x-ray was made (*Fig. 9*). Since there did not appear to be anything wrong, additional traction was applied and the stone was extracted.

In one instance a stone was extracted from the left kidney pelvis. The stone was suspected of being in the left upper ureter before cystoscopy. Because the catheter did not feel right, a film was made, revealing that the stone was engaged in the loop in the pelvis of the left kidney, which was lower than usual. The stone was extracted in one attempt without difficulty. Unfortunately, the films were lost and I cannot show them to you.

Fig. 7

X-ray showing the left ureteral calculus in the bladder.

In a number of instances, the looped catheter was used to prove that a stone was not present in the ureter. It is sometimes difficult to prove that a non-opaque stone is not present in, for example, a patient presenting symptoms similar to an ureteral colic or appendicitis. Insertion and withdrawal of a looped catheter without engaging a stone is suggestive that no stone is present. In approximately 20 times that a looped catheter has been inserted for such a purpose, the patients have not subsequently passed a calculus.

No explanation has been given concerning how the catheter loop engages the stone. Suffice it to say that it does do so with surprising regularity. In only one case did a patient pass a stone after the catheter had been inserted, looped and withdrawn without any sense of resistance or engaging the stone. The patient had colic on three occasions thereafter and finally passed a small black uric acid calculus three months later.

The insertion of the looped catheter does not seem to be attended by more trauma than results from the passage of an ordinary ureteral catheter. Although Balkus advised looping the catheter in the ureter, I have chosen to loop the catheter in the kidney pelvis. There does not seem to be much trauma, as measured by pain, in the process of forming the loop. But there has always been some evidence of trauma during the withdrawal of the loop, even when a stone was not present. There was always gross, though never severe, hematuria and on several occasions it appeared as if a piece of mucous membrane were attached to the tip of the catheter. The patients usually had more or less pain. Although a stone was extracted in the office, I consider the procedure definitely a hospital procedure, worthy of the utmost caution and skill. All patients have been given at least 3 grains of "seconal" as sedation and frequently "pentothal" sodium anesthesia was used. There have been no accidents. On one occasion, certain circumstances required that the looped catheter be removed after it was fixed in the ureter. This was easily done by releasing the wire and pulling on the catheter, as described by Balkus. There has never been an indication in this series that it might not be possible to remove the catheter easily.

The experience reported in this paper is based on attempts to remove ureteral calculi from 31

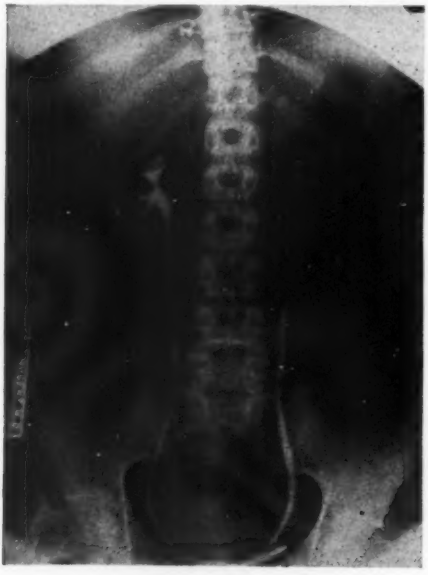

Fig. 8

An x-ray showing a left ureteral calculus which prevented the passage of a catheter or dye.

Fig. 9

During withdrawal of the catheter, there was a sense of unusual resistance. An x-ray made for safety showed the catheter engaging the stone satisfactorily. The stone was extracted.

patients. Twenty-three calculi were removed, these 23 cases requiring 29 cystoscopies. In 8 cases, the calculus was not extracted, even though the catheter was passed beyond the stone. In an additional 5 cases, attempts to extract the calculi met with failure because no ureteral instrument could be passed beyond the stone. During the period of two years covered by this report, five ureterolithotomies have been done. During the same period, approximately 40 patients passed ureteral calculi without requiring instrumental assistance.

REFERENCE

1. Balkus, V. A.: A Looped Catheter in the Treatment of Ureteral Calculi. J. Urol., **50**:667-672, 1943.

PLASTIC OPERATIONS IN HYSTERECTOMY*

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An analysis of 100 cases of vaginal hysterectomy, all of which had an anterior colporrhaphy, perineorrhaphy and in some instances additional plastic operations for control of urinary incontinence, rectocele or enterocele, and which were done more than five years ago are compared with 100 cases done in the last five years and is the basis for this paper.

These figures do not represent consecutive hysterectomies performed during these periods nor a selected list except that this number resided in or near Atlanta and could be easily reached for observation. While there have been more than 100 cases in the last five years, in order to submit a proper comparison this number has been selected. Prolonged observation could not be made on a greater number during the period prior to five years ago. No effort is made to classify them as to the exact time of operation, but each group is considered as a whole.

Of course, it would be expected that the end results in the first group would not be so favorable as those falling in the last group. However, the poor results which are particularly significant in vaginal hysterectomy, that is, shortening of the vagina, urinary incontinence in varying degrees and vaginal vault prolapse with recurrence of the cystocele and rectocele, are with the exception of the last, apparent at or almost immediately following operation.

No doubt, greater experience and an improved technic in performing these operations played some part in the tabulation but in an effort to compare the group properly, any patient with minor evidence of a poor result, in so far as the classifications to be discussed are concerned, was included in the second or more recent group. It might also be presumed that more of the women included in the first series presented greater degrees of uterine prolapse, cystocele and rectocele with concurrent stress urinary incontinence than in the second series. We have endeavored, however, to select the second series so that the original examination findings were similar to a marked degree.

The most unsatisfactory finding in vaginal hysterectomy, whether the broad ligaments are interposed or not, is shortening of the vagina which occurred in 25 per cent during the first period but in only 3 per cent, and to a minor degree, in the second series. Eight cases of colpocleisis of different types were not included in these series. Frank procidentia uteri of long duration in very old women is also not included

TOTAL CASES MORE THAN FIVE YEARS	
Postoperative	100
Shortened vaginae	25
Stress incontinence before operation	36
Relieved by Kelly operation	24
Stress incontinence after operation (not present before)	8
Vaginal vault prolapse recurrence with cystocele and rectocele	16

Table 1

TOTAL CASES LESS THAN FIVE YEARS	
Postoperative	100
Shortened vaginae	3
Stress incontinence before operation	42
Relieved by Kennedy operation	40
Stress incontinence after operation (not present before)	0
Vaginal vault prolapse recurrence with cystocele and rectocele	2

Table 2

*Chairman's Address, Section on Gynecology, Southern Medical Association, Fortieth Annual Meeting, Miami, Florida, November 4-7, 1946.

in the analyses as the depth of the vagina is not of particular significance. However, the average age at the time of operation in the second group is four years younger than the average age in the first group though only a few cases were under 40 years of age. The lower age at the time the patient seeks relief now is probably due to the increased awareness of women of the necessity of correcting lesions of the urogenital tract. It might be presumed that this particular abnormality of shortening of the vagina would not be of importance to these patients but this theory is quickly exploded in most of them if they are carefully questioned.

The publications of many operators were searched and clinics visited in an effort to find a solution to this problem. It was found that most gynecologists satisfactorily corrected the rectocele, cystocele and uterine prolapse but the vagina was frequently shortened, often to a depth of only 2 or 3 inches.

The shallow vagina seemed to be in direct proportion to the degree of prolapse, cystocele and rectocele and did not occur to any great extent if the pelvic supports were normal. Most operators, both in their publications and in the actual performance of the operation, orient their flaps early and remove mucous membrane which is later sorely needed.

In the dissection of the cystocele, the mucous membrane overlying the most prominent portion is thin and has no value except for the purpose of the construction of the vagina as the progressive development of the cystocele is through a rent in the fascia which cannot be identified until the dissection is carried out laterally. In the construction of the vagina we have carefully preserved the available mucous membrane by splitting the anterior vaginal wall in the midline in order to perform the proper operations on the bladder and urethra.

In fashioning the flaps, the vaginal vault end of the anterior vaginal wall begins at the middle of the original transverse incision at the bladder reflection on the anterior lip of the cervix which is marked either with a suture or an Allis clamp. The resection of the flap on each side is carried outward and upward for approximately one-half of the previously marked projected flap and then

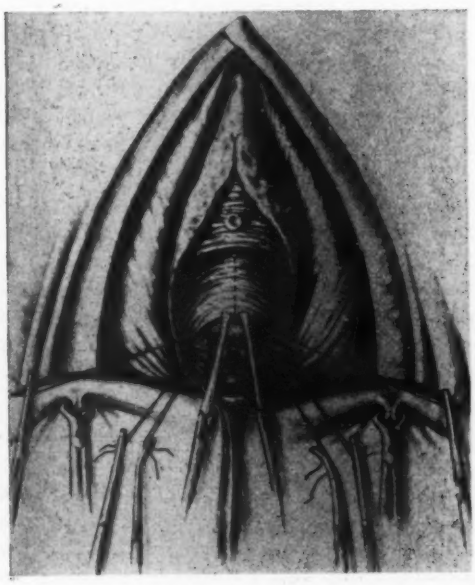

Fig. 1

Uterus has been removed. Broad ligaments identified by ligatures in clamps. Dotted line represents incision of the anterior vaginal wall, none of which is removed at this stage but split vertically to within one or two centimeters of the meatus.

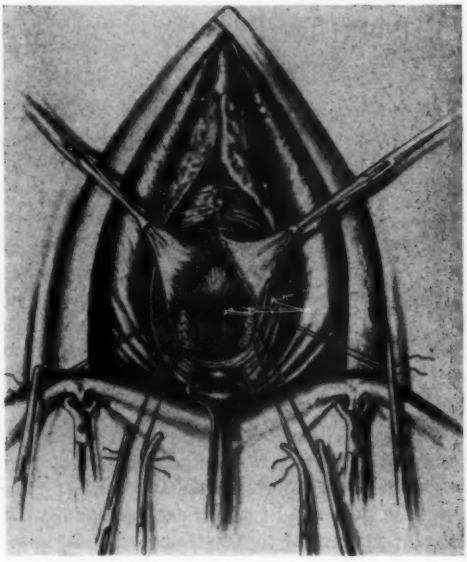

Fig. 2

Vaginal wall flap separated from the bladder. The broad and uterosacral ligaments shown.

curved inward and upward to the midline 2 or 3 centimeters below the meatus. These flaps are closed with interrupted sutures of chromic catgut in a straight line, although they have been cut on the bias, until the vaginal vault is reached. If the broad ligaments have been interposed by the method of C. H. Mayo or the base of the bladder sutured to the broad ligaments as suggested by Goffe and Ward, the sutures also pick up parts of the united broad ligaments but otherwise none of the deeper structures should be included in the mucous membrane stitches. Also, if the broad ligaments are interposed the full length of the urethra should remain below the point of the beginning interposition, or diurnal incontinence will frequently follow.

If the vaginal vault is wide and roomy, part of it may be included in the anterior vaginal wall repair but if the vault is of normal width, the anterior wall sutures should stop at the previously marked center of the original transverse incision in order to avoid either narrowing the upper portion of the vagina or encroaching upon the posterior vaginal wall.

Upon completion of the anterior row of sutures, the transverse row of interrupted sutures is not taken until the construction of the posterior vaginal wall is oriented.

The restoration of the bladder supports in order to correct the cystocele, and, if present, urinary incontinence, is not dependent in any way upon the mucous membrane but is accomplished by repair of the fascia endopelvina after thorough mobilization of the bladder and urethra.

The investigations of Kennedy[1] of New York, who has made serial sections in different planes of the anterior wall of the vagina and urethra, have revolutionized our conception of the etiological factors in stress incontinence. Kennedy's conclusions, though still in the theoretical stage, have been borne out in practice in his hands as well as in the experience of others. Counseller[2 3] of the Mayo Clinic reports the largest number of cases in which Kennedy's technic was followed, with almost 100 per cent successful results. Before our knowledge of Kennedy's work and Counseller's application of his concepts, we had fol-

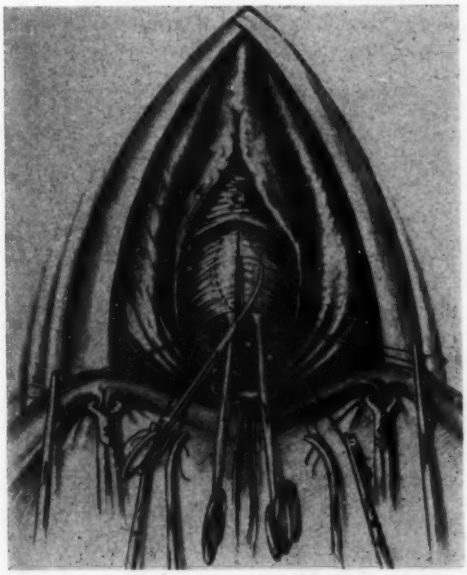

Fig. 3

Dotted lines represent the bilateral curved incisions which start at the lower edge of the flap, which curves outward considerably more than is shown in the illustration, thence inward and upward to a point one and one-half centimeters below the meatus. None of the vaginal vault mucosa is removed and the incision in the anterior vaginal wall is closed in a straight line which effectively lengthens the anterior vaginal wall.

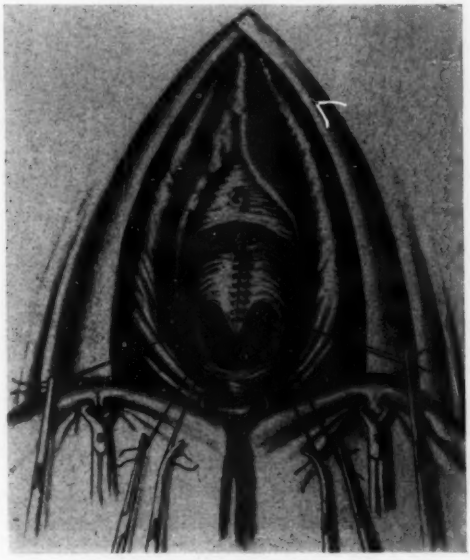

Fig. 4

Anterior vaginal wall closed in a straight line. The vaginal vault aperture is somewhat exaggerated for clearness.

lowed the teaching of Howard A. Kelly, who believed that urinary incontinence was due to injury to the internal vesical sphincter, and had secured a 70 per cent cure. However, we now mobilize the urethra and suture the fascia beneath it as Kennedy and Counseller advocate with excellent results in practically all patients.

Kennedy's[4] elaborate studies still leave unanswered the mechanism of urinary control, particularly the innervation or the role played by the ischiocavernosus and the vulvo-cavernosus muscles and it is hoped that further investigation may develop our knowledge of the etiological factors involved in urinary incontinence in the female.

In prolapse cases, it must be borne in mind that stress incontinence, may follow operation, even though it was not present before, unless the urethra is mobilized and supported. This happened in eight of our early cases.

The relief of urinary incontinence and correction of the cystocele should, therefore, be accomplished fully before any effort is made to fashion the mucous membrane flaps, but as in all plastic procedures, the completed operation must be kept in mind at all times.

You are, no doubt, familiar with Kennedy's work, therefore a detailed description of his operation will not be given. We believe that thorough mobilization of the urethra with careful suture of the fascia beneath it is the prime requisite for success. Mattress sutures of 0 chromic catgut have been used as a rule and we have not, except in a few instances, used silver wire in reconstruction of the supportive structure in the vaginal wall as this interferes with the vaginal mucous membrane flaps and is difficult to remove.

In lengthening the posterior vaginal wall, a somewhat different plan must be followed. The uterosacral ligaments are identified and if relaxed are sutured together with interrupted catgut as Bissell advised in order to overcome vaginal vault prolapse recurrence. The posterior cut edge of the vaginal vault is then sutured well upward to the uterosacral ligaments, either by mattress sutures which may take a bite in the cardinal ligaments on each side or by using the closing stitch devised by Heaney.

Heaney[5] bunches the broad ligament on each side by beginning a suture one centimeter to the side of the center of the anterior vaginal wall,

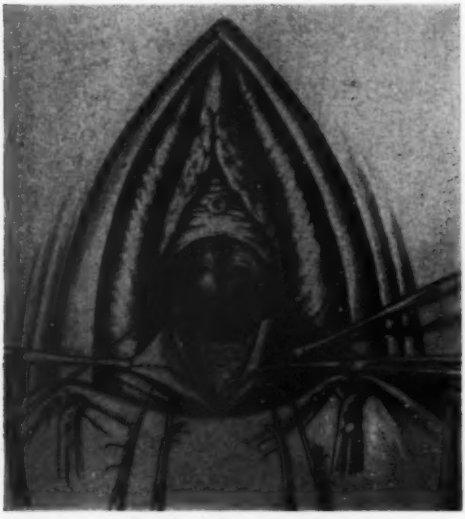

Fig. 5

Posterior vaginal wall turned down in the same way as the anterior vaginal wall was turned up and the flap being cut in order to lengthen the upper portion of the vagina.

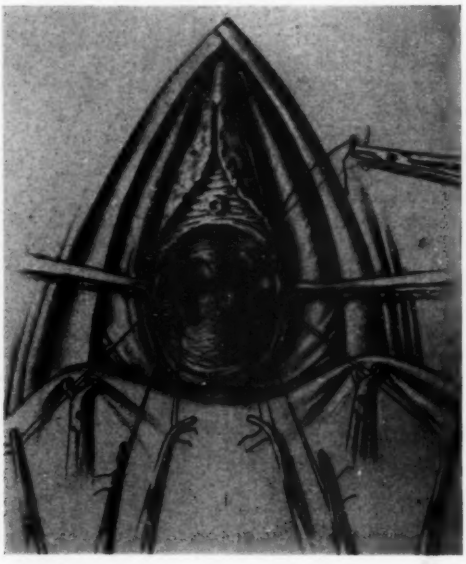

Fig. 6

Perirectal tissues closed over the high rectocele and attached to the united uterosacral ligaments.

picks up the superficial tissues around the base of the bladder, the vesico-uterine ligament, the broad and uterosacral ligaments on one side as well as any redundant peritoneum of the cul-de-sac of Douglas and emerges on the posterior vaginal wall to one side of the midline. A bunching suture of this type is placed on each side and when tied, effectively closes the peritoneal cavity, and takes up the slack in the ligaments as well as suspends the vaginal vault. We have not as a rule found it necessary to suture the round ligament of each side to the descending rami of the pubes as careful bunching of the broad ligaments with suture of the uterosacral ligaments together has been sufficient in most cases.

While a few years ago, perineorrhaphy and rectopexy for rectocele was a favorite topic in literature, few papers have been published in recent years. An accurate anatomical and physiological knowledge of the anatomy of the perineum is required for the proper restoration of the pelvic floor. The fascial and muscular investments of the perineum are ramifications of the pelvic fascia and must be kept in mind in hysterectomy operations as the success or failure usually depends upon a proper restoration of the posterior vaginal wall and pelvic floor. If the rectocele is very large or an enterocele is present, the cut edge of the posterior vaginal vault may be turned down and partially corrected before beginning the posterior vaginal wall repair from the perineum. This step is not, however, usually necessary. The various ramifications of the pelvic fascia are often stretched and attenuated to a marked degree and must be carefully and completely dissected and fully utilized as supportive structures, particularly in large rectoceles, but the perineal body must be constructed largely by suture of the levator ani muscles. After closure of the vaginal vault, Allis clamps are placed at each caruncula myrtiformis and a V incision made. The incision starts at the caruncula on one side, extends downward and inward to just above the anus and then upward and outward to the opposite caruncula. The skin of the perineal V is then dissected upward after which the mucous membrane of the posterior vaginal wall is resected in an inverted V to the crest of the rectocele. The object of

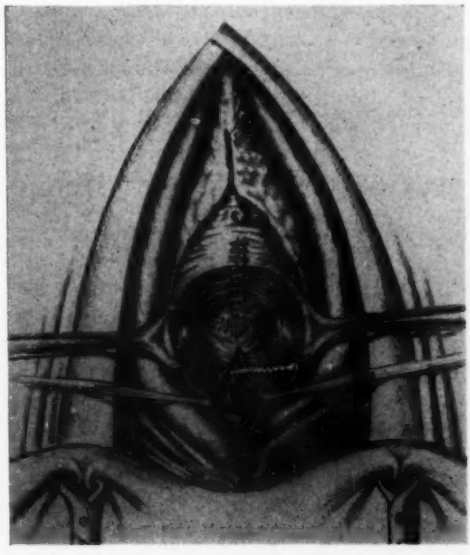

Fig. 7

Transverse sutures placed in the vaginal vault. Anterior sutures placed and tied as well as posterior sutures of the high rectocele. The double V-shaped incision which extends downward to just above the anus and upward to the crest of the rectocele which was not corrected by the previous vaginal vault dissection is shown. Interrupted sutures in the levator muscles.

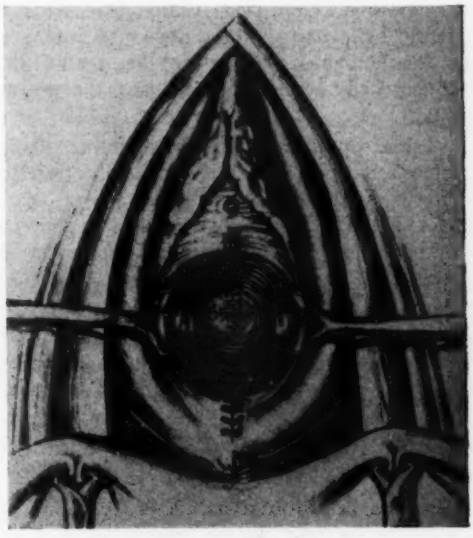

Fig. 8

Shows complete closure which lengthens the vagina, if correctly carried out.

making the perineal incision in this way is to enable part of the vagina to be built on the perineum if necessary to secure added depth.

After these denudations are completed, an additional incision is carried upward in the midline on the posterior vaginal wall to the closed vaginal vault. No mucous membrane is excised in this step.

In closing the posterior vaginal wall, interrupted sutures enter the longitudinal edge of the posterior vaginal wall and enter the base of the united broad ligaments then through the opposite vaginal wall for 2 or 3 sutures in order to anchor the vaginal vault additionally at this point. The suturing is continued downward and usually includes the stretched triangular ligament and rectal fascia until the crest of the rectocele is reached. The suture of the posterior wall is continued until the levator ani and transverse perinei are brought to view. The stretched triangular ligament can often be sutured to the muscles of the perineum, that is, the levator ani and transverse perinei which effectively closes the cleft through which the rectum prolapsed. The levator ani and transverse perinei are sutured in the usual way and the skin closed. If the posterior vaginal wall is too short at this time, we frequently build part of the posterior vaginal wall on the perineum and reduce the size of the perineal body without jeopardizing the proper support.

Vaginal vault prolapse with recurrence of the cystocele and rectocele is difficult of correction following vaginal hysterectomy as well as after abdominal hysterectomy. A careful technic in the performance of the original operation is prophylactic and the best treatment.

We believe that by following the technic outlined above, this distressing condition will be very rare. Only three minor degree recurrences have been found so far. While a goodly number of these cases in the last five-year period are more than three years postoperative, a later report will be of interest.

We also believe that with care, a vagina of normal proportions can be constructed without the risk of recurrence of the prolapse. This is important as gynecologic surgeons are performing more vaginal hysterectomies than ever before.

SUMMARY

(1) A method of lengthening the vagina in extensive plastic operations with hysterectomy is presented. Illustrations describe the technic.

(2) Careful analysis of results in 100 cases in which this method has been used shows a 97 per cent satisfactory vagina.

(3) One hundred cases analyzed in which other methods were used showed definite shortening in 25 per cent and minor degrees in a much larger proportion.

(4) Stress incontinence which has been difficult to correct by older methods responds almost invariably to a carefully performed Kennedy operation.

(5) Vaginal vault prolapse recurrence with cystocele and rectocele is rare after the pelvic supports are properly restored and is less if the vagina is properly reconstructed.

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MANAGEMENT OF BREAST TUMORS*

REVIEW OF 119 CASES

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In presentation of this subject no attempt will be made to review the literature, which has been done many times in the past few years, nor to draw dogmatic conclusions but only to review and analyze 119 breast tumors seen and operated upon by the author in the course of a general surgical practice. In later years, these cases will again be reviewed with more advantage than at present. Both benign and malignant tumors are reviewed, showing their ratio and results to date.

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When the patient presents herself for breast pathology, it is a very apprehensive moment. She has the inner feeling that her condition must be cancer. Tactful questioning and examination to determine the true condition should be done without undue alarm to patient, but with firmness as to what is necessary to be done.

In this group, there were 62 benign tumors and 57 malignant, as determined by biopsy and pathological study. Of these 114 were females and 5 males, the latter benign tumors. Of the benign tumors 37 per cent occurred in multiparae whereas in malignant group 80 per cent were in multiparae.

The average age in the benign cases was 41.0 years, the youngest being 19 and oldest 76, whereas in the malignant cases the average age was 52.8 years, the youngest 32 and oldest 80.

The chief complaint in the benign cases was tumor or lump 74 per cent, lump and soreness or tenderness 18 per cent, tenderness 5 per cent, and bleeding from nipple 3.5 per cent. In both groups 92 per cent complained of lumps or lumps and tenderness. In the malignant group 88 per cent complained of tumor.

The average duration of symptoms which is not entirely reliable, was 16 weeks in the benign cases while it was 27.8 weeks in the malignant cases.

No direct relationship between tumor and trauma was found in this group. In a man, a mass was present and proven to be chronic cystic mastitis, in whom severe trauma to the breast had occurred 2 months previously.

Frequently in the benign group associated follicular ovarian cysts were found but no conclusions can be drawn as to cause or effect. Where both conditions are quite evident, large doses of estrogenic hormones have seemed to be of benefit.

After completing the history with special reference to the above facts, a physical examination with particular emphasis on breasts and pelvis is performed. The breasts should be palpated gently against the chest with the palmar surface of the fingers, then through and through palpation of the entire breast. If findings are questionable this should be done in both the sitting and lying positions. The axillae and supraclavicular, regions should be carefully examined for enlarged lymph nodes. The location of the tumor, its size, presence of dimpling, and results of transillumination are carefully noted.

If a definite mass is found the patient is advised that biopsy will be necessary. This is the only means of eliminating malignancy. She is told that if at biopsy the mass is proven to be a benign condition, it will be a very simple procedure with 24-48 hours hospitalization. Biopsy must be done in a hospital with the cooperation of a competent pathologist. On the other hand, should the biopsy reveal any degree of malignancy, radical removal of the breast and surrounding tissues must be performed, resulting in 7-14 days hospitalization. This latter verdict may be softened to allay apprehension if findings justify it. Always permission for radical removal is obtained before biopsy. This may appear a severe shock but it has been found better to have the patient cognizant of possibilities from the start rather than to operate under a cloud of misapprehension. In the frankly malignant cases, suitable blood is obtained before surgery and in cases found malignant at biopsy cross-matching is done at once. The danger period in radical surgery of the breast is during surgery and the ensuing postoperative 6 hours. The patient may look well at the end of surgery and go into severe shock before reaching her room. Blood, 500 c. c. or more, is given during surgery in all radical mastectomies.

The location of the tumor was about equal as to right and left sides, benign being 27 right and 34 left, the malignant occurring 27 right and 30 left. The upper outer quadrant was the most frequent site. In the benign cases 57 per cent were found there, in the malignant cases 74 per cent. The upper inner quadrant was next with benign cases present 24 per cent of time and malignant 12 per cent. The lower inner quadrant was least frequent with the benign cases occurring there 6 per cent, and no malignant cases.

In the malignant cases dimpling of the skin was present in 82 per cent. This is the earliest and most positive sign of malignancy. If inflammation can be eliminated, positive dimpling has meant malignancy. Darkness on transillumination was present in 65 per cent of the cases. It is an important sign but again must be dif-

ferentiated from inflammation, where the shadow is diffuse in contrast to the discrete shadow of malignancy. Also in the benign cases, cysts with hemorrhagic fluid and occasionally adenofibromas cast a shadow very much like malignancy. In the malignant group metastases to lymph nodes were already present in 30 per cent of the cases.

Before operation the patient is advised of the possibility of radical removal. A competent pathologist is present. "Pentothal" sodium intravenously is given as anesthetic by a qualified anesthetist. In the frankly benign cases the submammary incision is frequently used with ease to the operator and satisfaction to the patient because of the inconspicuous scar. If there is considerable possibility of malignancy, a wedge-shaped area of the breast including the tumor may be excised with the high-frequency current. In about 85 per cent of the biopsies, gross examination reveals whether the tumor is benign or malignant. This is confirmed by microscopic study of a frozen section. If there is still doubt, no radical operation is performed. Should later study of fixed sections reveal malignancy, then radical removal is done. In one case the doubtful frozen section proved to be malignant and in one case a questionable tumor proved to be benign.

If the case is definitely benign, approximation of the upper and lower margins of the wedge-shaped defect to the opposite margin is accomplished and the skin whether the incision is local or submammary, closed with subcuticular stitch. If the case proves to be malignant, the defect is packed with gauze and the skin margins approximated with towel clips. Then the whole area is cleansed with alcohol and the dirty drapes are replaced about the field of operation. The transverse incision is preferred. This must be modified to suit the location of the tumor. The elliptical incision in its widest portion should pass at least three inches on either side of the tumor, converging medially and laterally. In case the subclavicular and axillary regions lack proper exposure a vertical incision may be extended upward, toward the clavicle medial to the anterior axillary fold. The skin flaps are dissected widely beyond the field of operation, thus assisting the closure. The incision and flap dissection are done with the high frequency knife. Most of the hemostasis can be accomplished by use of the coagulation current. A few larger vessels should be tied.

After detaching the tendons of the pectoralis major and minor muscles, leaving the clavicular fibers of the pectoralis major, the dissection of the axilla is begun above where the vein courses beneath the clavicle. The sheath of the vein is removed and all small tributaries, preserving the long thoracic, thoraco-dorsal, and subscapular vessels and nerves. The small vessels should be ligated as isolated, as they are easily torn, in which case they are profuse bleeders and even the wall of the axillary vein may be torn. This dissection is carried downward until the tendon of the latissimus dorsi muscle is outlined. This muscle is cleaned on its outer and inner surface preserving its nerve and blood supply. The long thoracic vessels and nerves are carefully guarded in cleaning the serratus anterior muscles. The lower thoracic wall is cleaned removing the sheath from the upper part of the rectus muscle. The dissection is carried upward and medially over the sternum thus completing the removal of the breast. Thorough hemostasis is effected. The skin margins are fitted over the defect using skin towels for approximation. Then multiple mattress sutures are placed widely to hold the skin together. The margins of the skin are closed with a continuous fine dermal suture. Rubber tissue drain is placed through a stab wound into the axilla. Dressing is applied with firm pressure over the axillary region.

After surgery the patient is watched carefully for shock as the immediate 6 hours postoperative is the critical time. If the patient needs additional blood because of excessive loss during surgery, it is given, or plasma 250-500 c. c. if shock is evident. The fluid balance is brought up by administration of 5 per cent glucose in normal saline intravenously as indicated.

The arm is supported on pillows at 90° angle to shoulder and that angle maintained until complete voluntary use has been regained. Immediate use of the forearm is advocated. The arm is manipulated at the end of 24 hours. The patient is made to move her arm at the end of 48 hours and usually at the end of 4 days the

patient can comb her hair, feed herself, and reach back of her head using the affected side. The maintenance of the angle of abduction and early usage are essential if satisfactory function is to be obtained.

In those cases 70 or more years old or who are poor surgical risks and in whom definite operable malignancy is found, a simple mastectomy has been performed with surprisingly good results.

In the malignant group there have been 49 radical mastectomies using transverse incision in 32 cases and an oblique incision in 17 cases. The average stay in the hospital for these was 10 days, with days of temperature 100° F. averaging 2 degrees. There have been 8 simple mastectomies averaging 3 hospital days and 0.4 days of morbidity. There were 62 biopsies in benign cases averaging 1.8 days in hospital.

What has happened to these cases after operation or the follow-up is the most informative and important matter. In the benign group 60 are living and 2 are dead. One patient was an alcoholic and died 2 years later with cirrhosis of the liver. The other had cystic hyperplasia in the left upper outer quadrant as shown by biopsy in May, 1944. In the same area in March, 1945, biopsy revealed scirrhous carcinoma with metastatic axillary lymph nodes. The previous microscopic slides were carefully reviewed with no signs indicating malignancy. Postoperative x-radiation was given. The patient developed leukopenia with loss of platelets. Repeated blood transfusions maintained sufficient platelets but no regeneration resulted. Generalized metastasis ensued and the patient died in December 1945.

Two other cases have had multiple breast surgery. In the left upper outer quadrant one had biopsy showing duct carcinoma with radical mastectomy in May, 1942. In the upper outer quadrant of the right breast biopsy revealed pericanalicular fibro-adenoma in July 1944. The other case had cystic hyperplasia in April, 1944, in the right breast, the same in the left in November, 1944; and comedo carcinoma in the right breast with radical removal in May, 1946.

In the group with malignancy the story is much sadder and very discouraging, making one realize the inefficacy of surgery especially where metastasis to lymph nodes are found. In case metastasis is present, postoperative x-radiation should be given. Of the 57 cases with malignancy of the breast 70 per cent are alive, 23 per cent are dead, and 7 per cent alive with known recurrence. Of those operated upon 5 or more years ago 43 per cent are alive and 57 per cent are dead; under 5 years 79 per cent are alive, 12 per cent are dead and 9 per cent alive with recurrence.

If metastatic glands were present 11 or 50 per cent are dead as compared to only 5 per cent mortality where lymph node metastasis was not found. This same group when arranged as 4 years or more after operation with metastatic nodes revealed 70 per cent mortality, but under 4 years only 33 per cent mortality. If metastasis to nodes was absent, 4 years or more the group showed only 9 per cent mortality and under 4 years 4 per cent mortality. This is an astounding fact and emphasizes the necessity of early diagnosis before metastasis.

Those cases given postoperative x-radiation give some ray of hope and this aid should be used especially where metastatic nodes are present in the axilla. If metastasis were present and x-radiation given the mortality was 35 per cent. If metastasis were absent and x-radiation given (only 6 cases) there were no deaths.

The mortality is given as related to the duration of symptoms, which is an unreliable factor as a tumor may have been present for some time before the patient was cognizant of it. This again shows the effect of metastatic lymph nodes on the mortality. If symptoms were present 6 months or more and metastasis found (55 per cent of these cases) the mortality was 50 per cent, whereas if metastasis were not found the mortality was only 12.5 per cent. For this group with symptoms 6 months or more the overall mortality was 33 per cent. Where symptoms had persisted less than 6 months and metastasis was present (33 per cent of these cases) the mortality was 38.4 per cent, but if metastasis were absent (67 per cent) in this group the mortality was only 4 per cent. The overall mortality for this group was 15 per cent.

In the age groups 30-59 with metastasis (50 per cent) the mortality was 42 per cent; without

metastasis 5 per cent, or a total mortality for this age group of 24 per cent. In the ages 60-80 plus with metastasis (21 per cent) the mortality was 25 per cent, without metastasis 13 per cent or a total of 14 per cent. Metastasis less frequently in the 60 plus age group which in turn lessens the total mortality for this group.

Eight simple mastectomies were performed, 7 of whom were over 70 years of age. Metastasis were present in only 1 case. Postoperative x-radiation was given in 2 cases, one of whom has recurrence. All others are alive with no recurrence 3 and 4 years, the oldest is now 84 years of age. This procedure deserves consideration in the aged or infirm.

The pathology of benign breast tumors will be discussed under three classifications: (A) chronic cystic mastitis, including under this heading the following synonyms, chronic cystic mastopathia, chronic cystic hyperplasia and Schimmelbusch's disease; (B) fibroadenoma; and (C) real adenoma.

(A) The hemorrhagic cysts, cysts originating from abscesses; the galactoceles (large, apparently single cysts caused by obstruction to the escape of milk) do not belong to this group, yet the involution or retention cysts of older women do. The latter are not always the incomplete involution of normal glands but are characterized by the presence of glandular proliferations plus formation of cysts. The cyst formations usually seen in elderly women are also often encountered within the younger brackets. They appear as nodes and nodules, mostly multiple, often bilateral, rather firm, sometimes imposing as real carcinoma. They are pea- or cherry-like in size, cannot be shelled out and show characteristic cysts on their cut surface. One or both of the breasts are often mottled by these cysts. Due to the admixture of blood the content of these cysts varies in color (bright yellow to greenish red).

Under the microscope these nodes appear as enlarged, practically adenomatous glandular lobules showing cyst-like dilatations of the excretory ducts. Simultaneously the connective tissue is increased near the gland and may also offer evidence of hyalinization (fibro-epitheliosis). In some cases it is the connective tissue, in others, the epithelium, which is more prevalent. These areas are surrounded by lymphocytes, plasma cells, histiocytes, etc., the amount of which may be so great that a superimposed infection is often thought of. The epithelial layer of these cysts shows sometimes a transformation into large, pale, rather eosinophilic cells. These epithelial changes as such are not ominous but sometimes they show irregular proliferations, accepting bizarre forms; multiple layers, solid papillary excrescences, arrangements like transverse bars crossing the lumen of the gland. All these irregularities may gradually lead to a breakdown, surpassing glandular boundaries with impaction into blood and lymphatics. In short, the picture finally exhibits a typical carcinoma. The origin of these cysts differs widely; sometimes they are traceable into the large (milk) ducts, sometimes into the excretory ducts and sometimes into the final ducts within the lobules.

The cause of this disease is surely not an inflammatory stimulus. There are endocrine disturbances similar to those in the uterus (adenomyosis), hypertrophy of the prostate, adenofibrosis of the thyroid. All of these processes are mainly seen at the time of the involution of the glands. Physiological as well as pathological irritation, to which the breast is so much exposed, releases these endocrine disturbances. Dysfunction of the ovaries and their consequences are responsible among other endocrine disturbances. Naturally also, an individual predisposition has to be assumed because the breast of different individuals shows so many different reactions to the same endocrine-physiological and pathological insults. Cystic mastopathia is considered as a typical example of a blastoid or preblastomatous proliferation (precancer) of an organ due to its function. So it is well understood why genuine neoplasms, benign as well as malignant ones, develop on the basis of chronic cystic mastopathia. The more vivacious and irregular epithelial or connective tissues grow and the more the epithelial proliferations accept an irregular character, the more one is entitled to assume a precancerous phase.

There were 39 cases of chronic cystic mastitis.

(B) *Fibro-adenoma.*—These tumors are well defined, tough in consistency, reaching the size of a cherry or walnut, easy to shell out, which on their cut surface offer a fiber-like stripping.

Between the fibers an irregular tissue formation is noted. Color is greyish or white, depending upon the direction of the cut surface.

Corresponding with the different microscopic aspects the microscopical examination also reveals different pictures and shows different transitions so that a definite separation is more an arbitrary act than a real classification.

(1) *Pericanalicular Fibro-adenoma.* — This presents the picture of an irregularly glandular lobule but the single ducts are surrounded by a dense layer of connective tissue rich in cells and fibers. This connective tissue may be easily separated from the interlobular connective tissue which is rather poor in cells. Most of the glands offer a well demarcated tunica propria. Six such cases were present.

(2) *Intracanalicular Fibro-adenoma.*—The excretory ducts are increased and protrude like a pillow into the lumen. The latter is hereby transformed into an irregularly formed tissue, the picture of which is very delicate and gives this tumor its characteristic feature. In this classification there were 7 cases.

The connective tissue participating in the architecture of the new growths may assume edematous, myxomatous or lipomatous character. This fact explains terms like adenomyxofibroma, adenolipofibroma, and so on. If the position of the connective tissue should accept sarcomatous features it is called adenofibrosarcoma. The common fibro-adenoma are benign but may sometimes change into malignancy. They are rarely seen as such in males.

(C) *Real Adenoma.*—They are real (benign) neoplasms and occur in two different forms: (1) solid adenomas, resembling the fibro-adenomas but showing a preponderance of glandular proliferation. This type is mainly seen during pregnancy and may therefore be considered as a circumscribed glandular growth originating in a fibro-adenoma under the influence of pregnancy.

(2) *Papilliform Cystadenoma.*—They include cystic formations exposing small wart-like elevations, covered with columnar epithelium. Mostly they may be found in the large submamillary excretory ducts of the breast. Probably they are in genetic connection with the papillary proliferation of the large ducts already described in cystic mastopathia.

Both types of these tumors are rare, only one case being found in this series.

(D) According to the macroscpic impression we differentiate two main groups of carcinomas of the breast; the fast growing soft type and the slowly growing hard type. Gradual transition from one type to the other is well known. It should also be known that the slow growing firm carcinoma may set metastases early which may be soft and fast growing. The soft tumors are white-grey and medullary on the cut surface and produce the typical cancer juice; the hard forms make a scar-like impression and extend ray-like into the surrounding. The firm cancer nodes show often a delicate whitish-yellow streak or patch-like pattern. Under pressure these release worm-like soft tumor masses (comedo carcinoma). One of the common transitions between the firm and the soft type are nodes where the center is more scar-like in aspect while the periphery is more medullary in form. But, and this is important, even the soft types of cancer of the breast are of a firmer consistency than the surrounding healthy breast tissue.

The microscopic study shows even more details in the transitions between the main types and permits more thorough, though not completely satisfying classification.

(a) *Medullary Carcinoma.*—This may again be subdivided, according to the arrangement of the cancer cells into a tubular, alveolar and a diffuse form. The cells are mainly polymorphous with vesicular nuclei and are arranged in small stands, or alveolar accumulations or they infiltrate the lymph spaces of the tissue diffusely. Within the carcinomatous infiltration remnants of ducts may be found. The malignant growth may also proliferate within larger ducts for a long distance. Impactions into lymph or blood vessels, especially into veins, are frequently encountered. There were 36 cases in this group.

(b) *Scirrhous Carcinoma.*—The carcinomatous strands are in the background in form of an increased, often hyalinized, connective tissue. As a rule the scirrhous type is more frequently

met with in the center of the tumor while the periphery still shows a medullary architecture. It is a well established fact that the scirrhous presents nothing but an attempt at healing of a medullary carcinoma; the slower the cancer grows, the more frequently one will meet scar-like formation in the older parts. It is known that the cancer grows from a center towards the periphery; the oldest parts are therefore centrally located and that is the reason one finds scirrhous more in the center of the malignancy. But in spite of the central scar formations the tumor masses dislodge from the periphery and impact blood and lymph vessels, thus are able to set up numerous metatases and because of the late recognition a high mortality. There were 17 cases of this type.

(c) *Psammocarcinoma and Gelatinous Types.*—They are rather unusual forms. The first one shows deposits of lime salts while the second one shows an overproduction of mucoid.

(d) *Squamous Cell Carcinoma.*—That the latter occurs is no surprise because the glandular epithelium is derived from squamous epithelium and it may differentiate in different directions. One such case was found in this group.

Carcinosarcomas (carcinoma plus a sarcomatous framework) and even osteosarcocarcinomas are also described.

(2) *Carcinoma of the Mammilla and Areola.*—They are rare and are represented as hornifying squamous cell carcinomas or as columnar epithelial carcinomas if originating from glandular ducts. More often one meets a peculiar eczema of the nipple and the areola which is followed by malignant growth later on (Paget's disease). According to recent studies one is dealing with special changes of the epithelial cells especially in the basal cells (Sartoris cells). These changes consist mainly of storage of glycogen with loss of the epithelial fibers. These changes plus the development of a typical nuclear structure occur and the whole structure of the epidermis becomes destroyed. Beneath this destroyed and changed papillary body a marked infiltration of lymphocytes and plasma cells takes place. The epithelial proliferations are supposed to have a multicentral origin within the large ducts as well as within the sebaceous and sweat glands and finally within the epithelium of the areola. The whole process which resembles Bowen's dermatosis (intra-epidermic carcinoma) is considered as a pre-cancer and as a matter of fact this peculiar eczema is very frequently followed by cancer. Melanomas of the nipple and areola occur but are very rare.

(E) *Mesenchymatous Growths.*—Fibromas are described but it is doubtful that they occur in an isolated form. They are more frequently noticed as a diffuse fibromatosis. Other rare tumors of the breast of this kind are lipomas, neurofibromas, chondromas, osteomas, endotheliomas, peritheliomas, leiomyomas, mixed tumors, teratoma and sarcomas. Metastasis into the breasts is extremely rare and is known as so-called "plastic carcinomatous mastitis."

In cases having medullary carcinoma with metastasis to lymph nodes, the mortality rate was 23 per cent whereas without metastasis it was only 8.7 per cent; and the total mortality for medullary carcinoma was 14 per cent. In the group having scirrhous carcinoma with metastasis the mortality rates were 67 per cent against 12.5 per cent without metastasis and a total mortality for scirrhous carcinoma of 41 per cent.

SUMMARY

(1) One hundred nineteen cases which have been operated upon by the author have been reviewed.

(2) The relationship between benign and malignant tumors is about equal.

(3) The average age of benign cases was about ten years younger than in the malignant group.

(4) Ninety-two per cent of the cases operated upon complained of tumor or tumor with tenderness.

(5) The most frequent site was in the upper outer quadrant. Seventy-four per cent of the malignant cases occurred there.

(6) The most positive early sign of malignancy is dimpling of the skin. Darkness upon transillumination is a most helpful sign.

(7) All tumors of the breast should be biopsied to eliminate the possibility of malignancy.

(8) A simple mastectomy may be used with surprisingly satisfactory results in those opera-

tive cases of malignancy which do not permit the more serious operation because of age or infirmity.

(9) Mortality rates reveal definitely the importance of lymph node metastasis, and emphasize an early diagnosis.

(10) A short review of the pathology of breast tumors has been given.

CARCINOMA OF THE BREAST*

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The chief reason for presenting this subject is to encourage treatment of seemingly hopeless cases of mammary cancer. An extra year of life may not mean much to another person, but to the patient, it means a great deal. It means even more if this time can be spent usefully and relatively free from pain. Whether or not any actual physical benefit is obtained, the patient has the certain knowledge that something is being done for her. She is not being "just allowed to die." The ultimate fatal outcome of many cancers can be postponed a year or more, allowing the patient this additional time of useful living.

Cancer still ranks second in the national death rate. In Alabama, one hundred and fifty-seven deaths from cancer of the breast were recorded in 1943. Of these one hundred and seven were Caucasians, fifty-two were Negroes. The lower incidence of carcinoma of the breast in the Negro is probably due to the fact that many negro mothers nurse their babies as long as possible.

Much has been written concerning the role of estrogens in mammary carcinoma.[3 9] The mammary gland is affected by whatever affects the reproductive system as a whole. The accentuated growth of breast carcinoma during pregnancy and lactation has long been recognized. It is also generally recognized that in those women in whom cancer of the breast and pregnancy occur simultaneously, the mortality rate is very high. The evil effect of a simultaneous pregnancy is further increased if, after delivery, the mother is allowed to nurse her baby. When a cancer is already present, and this increased stimulation is added, it leads to most disastrous consequences.

*Chairman's Address, Section on Radiology, Southern Medical Association, Fortieth Annual Meeting, Miami, Florida, November 4-7, 1946.

CLASSIFICATION

When planning the treatment to be instituted, a great deal depends upon the extent of involvement. The terms "operable" and "inoperable" vary in different localities. In the same locality, surgeons of equal ability differ in their interpretation of these terms. As a result it is difficult to compare end results. Portmann[11] has suggested the terms "surgically curable" and "surgically incurable" instead of "operable" and "inoperable." In the same article he gives an excellent classification based on clinical and pathological criteria for primary cases.

In our* cases we have used the form devised by the American College of Surgeons (Form 21 A C S Revised October 1939). This first divides breast carcinomas into:

(1) Primary.
(2) Recurrence postoperative.
(3) Recurrence postirradiative.
(4) Recurrence after combined methods.

Each of these is further subdivided into:

(A) Limited to breast.
(B) Axillary nodes questionable.
(C) Axillary nodes positive.
(D) Supraclavicular nodes.
(E) Metastasis remote.
(F) Opposite breast or nodes.

The extent of axillary node involvement is of considerable importance in prognosticating the outcome of a breast cancer. Portmann[11] emphasizes this in his article. Warren and Tompkins[12] assert,

> "The most important factor in predicting the survival of patients with carcinoma of the female breast after operative treatment has proved to be the presence or absence of metastasis to lymph nodes in the axilla."

They further show that "curability" on the basis of "five-year cure" or longer periods, is inversely proportional to the extent of metastasis

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in the axilla. This information is of considerable value when included in the report from the pathologist.

ANALYSIS OF CASES

An analysis has been made of the records of cases of carcinoma of the breast treated by us between 1936 and 1941. Of the primary group treated by surgery and irradiation, only those records which included a microscopical diagnosis were used. The surgery was not done by any particular group or clinic. The patients were referred from various surgeons in our city and from the surrounding towns. It, therefore, represents the work of no one institution. The operations performed on these patients ranged from simple excision of the tumor to radical mastectomy.

These are further subdivided in *Table 2* without glandular metastases. In *Table 3* the effect of metastatic axillary nodes are seen. The survival rate is greatly reduced. Time does not permit a comparison of those with slight glandular involvement as compared to those with heavy invasion of the nodes. It is obvious in reviewing the records.

It is in the last group that radiation therapy may offer great relief. Ewing[6] says:

"As a palliative method, radiation causes complete regression of many local recurrences. Some of the most striking results are seen in the control of bone metastases, in which pain is relieved, the bone structure restored and life prolonged."

Frequently the patient complains of pain for some time before there is roentgenographic evidence of the invasion. The pain may be either local or neurolgic.[5]

Of all metastatic malignant bone lesions, those due to breast carcinoma are the most common. The bones most commonly involved are the pelvic bones, the lumbosacral vertebrae, ribs, dorsal vertebrae and femur. Next in sequence are the cervical vertebrae, skull, scapula, humerus, clavicle and sternum.[4] Carcinoma of the breast seems to have a predilection for these sites. It is rarely seen below the elbow or the knee. In a recent article by Adair and Herrmann[2] the present day conception of the manner in which bone metastases occur is well reviewed. We have had a patient in whom there was a metastasis to the first metatarsal of the left foot; another with metastasis to the ulna.

Following roentgen therapy the pain of osseous metastasis is relieved, in many instances completely. The bone structure is restored. The greatest deformity is seen in the vertebrae, as the vertebral body is usually compressed when the lesion is discovered.

Metastatic lesion in the bones of the skull are rarely painful. The patient usually discovers a lump. A roentgenogram reveals the defect in the skull. Since the lesions in the skull are not painful, it has been our custom to refrain from giving them roentgen therapy, unless the patient's family insists. The alopecia which results, following such therapy, is quite con-

POSTOPERATIVE SURVIVAL OF PATIENTS TREATED PROPHYLACTICALLY

(All Cases—Group 1A and 1C)

Year	No. Cases	Number of Years 1	2	3	4	5	6	7	8	9	10
1936	6	5	4	4	3	2	2	2	2	2	2
1937	17	17	15	14	13	12	11	11	9	8	
1938	13	12	12	7	6	6	6	5	5		
1939	17	15	13	11	10	8	8	6			
1940	25	24	20	17	13	13	13				
1941	18	16	14	13	13	10					
Total	96	96	96	96	96	96	78	53	36	23	6
Living		89	78	66	58	51	40	24	16	10	2
Per cent Living		92	81	73	60	53	51	45	44	43	33

Table 1

POSTOPERATIVE PROPHYLACTIC IRRADIATION, WITHOUT AXILLARY NODES METASTASIS

Year	No. Cases	Number of Years 1	2	3	4	5	6	7	8	9	10
1936	3	3	2	2	2	1	1	1	1	1	1
1937	9	9	8	8	8	8	7	7	7	6	
1938	8	8	8	6	5	5	5	4	4		
1939	8	8	7	6	6	5	5	3			
1940	13	12	11	11	10	10	10				
1941	8	8	8	8	8	7					
Total	49	49	49	49	49	49	41	28	20	12	3
Living		48	44	41	39	36	28	15	12	7	1
Per cent living		97	89	83	79	73	68	53	60	58	33

Table 2

spicuous. Before any treatments to the head are started either the patient or a relative is told that the hair will fall and that the alopecia may be permanent.

STERILIZATION

That sex function affected breast cancer was suspected in the early days of treatment. Surgical castration was performed long before the roentgen ray was discovered. Opinion as to the value of castration remains divided. An excellent review of this is given by Leucutia.[10] He concludes,

"(1) In the presence of osseous metastases, roentgen castration is beneficial in at least one-third of the cases; (2) in local recurrences and generalized visceral metastases, roentgen castration is of questionable value; (3) In the operable group of mammary cancer, radical surgery associated with intensive local and regional irradiation seems to offer the best combination of treatment for the final success."

THE USE OF ANDROGEN

The success experienced in the use of estrogens in the treatment of the osseous metastases of prostatic cancer has stimulated investigation into the use of the male gonadal hormone in the treatment of breast cancer in the female. In a recent article Adair and Herrmann[1] summarize the work of recent investigators and add their own experience. They administered testosterone propionate in rather large doses (3,975 mg. in three months to one patient) to eleven patients, four of whom exhibited a favorable response. Some of the untoward effects which may be encountered by the administration of hormone therapy are cited by Farrow.[7] All are agreed that patients receiving testosterone therapy must have frequent blood chemical studies with particular attention paid to the serum calcium level.[1 8]

TECHNIC

Prophylactic postoperative therapy is begun as soon as the patient is able to come to the office, or to the x-ray department. Three areas are treated: (1) The anterior chest which includes the parasternal region and epigastrium, (this is given with the central ray tangential to the chest); (2) a clavicular area which includes the infra- and supraclavicular and the cervical region, (3) the axilla. Areas one and two receive 1600 to 1800 r. (measured in air), the axilla 1000 to 1200 r. The following factors are used: 200 kv.p., 20 ma., 1 mm. cu. and 1 mm. Al. filter (H. V. L. 1.4 mm. cu.) and a focal skin distance of 50 cm. The daily dose is 200 to 300 r. In so far as possible, the series is repeated in six or seven weeks. We can usually follow this procedure with patients who live in town, or near by. It is difficult to persuade those who live in rural communities, away from travel conveniences, to return for the second series.

We do not urge roentgen sterilization. The patient or some member of the family is told of the procedure. We then allow the family to decide, with the advice of the referring physician.

POSTOPERATIVE PROPHYLACTIC IRRADIATION, WITH AXILLARY NODES METASTASIS

Year	No. Cases	Number of Years 1	2	3	4	5	6	7	8	9	10
1936	3	2	2	2	1	1	1	1	1	1	1
1937	8	8	7	6	5	4	4	4	2	2	
1938	5	4	4	1	1	1	1	1	1		
1939	9	7	6	5	4	3	3	3			
1940	12	12	9	6	3	3	3				
1941	10	8	6	5	5	3					
Total	47	47	47	47	47	47	37	25	16	11	3
Living		40	33	24	19	15	12	9	4	3	1
Per cent living		85	70	51	40	31	25	36	25	27	33

Table 3

RECURRENT AND METASTATIC LESIONS

Survival of Patients in the Inoperable, Recurrent and Remote Metastasis Groups

Year	No. Cases	Number of Years 1	2	3	4	5	6	7	8	9	10
1936	4	2	1	1	1	1	1	1	1	1	1
1937	6	5	4	4	4	2	2	1	1		
1938	2										
1939	5	5	2	1	1	1	1	1			
1940	11	7	5	3	1	1	1				
1941	7	7	3	3	2	1					
Total	35	35	35	35	35	35	28	17	10	4	4
Living		26	15	12	9	6	5	3	2	1	1
Per cent living		74	42	34	25	17					

Table 4

PREOPERATIVE IRRADIATION

Routine preoperative irradiation is not given by us, in the usual sense of the phrase. If the patient is considered "surgically curable" and there is no contraindication to surgery, the radical procedure is urged. If for any reason surgical treatment cannot be undertaken, the following procedure is used: The breast is treated through an internal lateral port (which includes the parasternal area) and an external lateral. Each area is given 1200 to 1500 r. (a total dose of 2400 to 3000 r. to the breast). The axilla is treated as in the prophylactic group unless there are palpable nodes. If these are present we increase the dose to 1600 or 1800 r. If there are palpable nodes in the supraclavicular and cervical regions, the dose here is increased. It usually requires about eight weeks for the skin to recover from this amount of irradiation.

Occasionally, following this treatment, lesions formerly considered inoperable revert to a stage considered surgically curable. These are referred back for this procedure. Those that are not considered amenable to surgery are kept under observation. Such treatment as is deemed necessary is given if and when the occasion arises.

RECURRENCES AND REMOTE METASTASES

No routine can be followed in this group. Each lesion is treated as seems best, largely influenced by preceding therapy. Recurrent nodules in the skin are treated by a combination of superficial (100 kv.p. with 1.0 mm. cu.) and deep therapy when there are but a few lesions widely separated. Many are thus completely destroyed. However, when multiple, closely grouped nodules are found in an edematous and indurated background only deep therapy is employed with the hope of retarding their growth.

Metastases to bone are treated with deep therapy. Eighteen hundred to 2000 r. is given to the affected area and the progress of the lesion is observed by repeated roentgenographic examination.

COMPLICATIONS

Radiation sickness is the most frequent complication. After trying various vitamins we now use a combination of thiamin hydrochloride (B_1) and pyridoxine hydrochloride (B_6), 50 mg. of each per c. c. of the solution. One cubic centimeter given intravenously or intramuscularly on alternate days is usually sufficient to control the nausea.

In conclusion, let me urge more consideration and care for the so-called "incurable" cancer patient. We now have many more agents, physical, chemical and biological, to aid these unfortunates. The surgeon, radiologist and biologist have developed means of treatment which will greatly alleviate their suffering even though they may not be cured.

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SOME RECENT EXPERIENCES WITH VITAMINS AND VITAMIN DEFICIENCIES*

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and

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In the past few years the advances in the field of vitamins have come so rapidly, and the new discoveries have been of such far-reaching

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*University of Cincinnati Studies in Nutrition at the Hillman Hospital, Birmingham, Alabama.

*We were assisted with these studies by Miss Elizabeth Scholz, Miss Emily Williams, Miss Belle Culver, and Mrs. Mary B. Koch.

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importance, that a discussion of this length can no longer be comprehensive. Upon the once narrow field of vitamin research have converged many separate branches of the biological and natural sciences. When it is considered that vitamins are now essential tools for investigation in the diverse fields of chemotherapy, bacteriology, mycology, genetics, and enzyme chemistry, no apology is needed for want of comprehensiveness. Even with the recent spectacular progress, we are but on the threshold of further advance, if only in application of knowledge already won.

It is indeed a far call from the day when Funk's "vitamine" had literal significance. Included among the vitamins is a heterogenous conglomeration of components whose structures differ greatly and whose functions, as far as are known, differ even more. Their common features are that they are not built up by the body, at least in the amount needed, and that they carry on their several functions in small concentration or only in traces.

These substances may be divided for convenience into the fat-solubles and the water-solubles, the traditional divisions; and the water-soluble ones may be subdivided into ascorbic acid and the B group and those outside of that still expanding list. But these divisions are artificial and, along with the alphabetical designations and unit system of requirement and dosage, are accretions of the tedious and laborious studies of the past that are not essential to our understanding in terms of current concepts. With the new investigations which make use of technics in many sciences heretofore sharply separated, advances in the laboratory have outpaced those in the clinic. We are now at the stage where we have more vitamins than recognized deficiency syndromes for which to use them. In order to dissect the symptom due to depletion of a single factor from the confusing mixture of symptoms characterizing the naturally occurring multiple deficiences, studies have to be made upon human beings. These have been for the most part of relatively short duration so we have much more data on the manifestations of an isolated acute deficiency than on the chronic partial deficiency. Nevertheless, progress is being made in a number of clinics. This bears promise of much more clarity for future knowledge.

Herded together under this unwieldly but encompassing name of vitamins are at least twelve identified compounds and mavericks still uncounted. They are comrades rather than congeners and are classed together by virtue of their association in nature rather than by any close chemical similarity. At least some of the B complex vitamins function as parts of enzyme systems and thus are essential to the normal respiration of tissues. Other vitamins appear to have a more localized or particularized part to play and, as a group, are concerned with structural integrity more than energy utilization. Their occurrence in certain ratios of rarity and plenty varies among different foods but maintains something of a pattern which suggests that this balance is needed for proper cellular function. The knotty problem of nomenclature is a heritage of the past, for once it was believed that what we now call the B complex vitamins was a single entity. The utility of the letter and subscript vanished with the identification of the individual components which will be referred to by their accepted names. Though the isolation of some of these vitamins was possible only with the pioneering of new chemical terrain, others were well known chemicals long before their vitamin nature was established. Ascorbic acid and thiamin hold places of honor because they were the first vitamins of this group to be found in pure form and then among the first to be made *de novo*.

Prior to the artificial synthesis of ascorbic acid and thiamin our controlled clinical studies had already led us to the conclusion that persons with any nutritional deficiency disease had deficiencies of not one but several nutrients. Thus we developed the concept of nutritive failure and have used this concept as a working hypothesis. Nutritive failure, as we use the term, may be defined as follows:

Nutritive failure is a clinical term which, perhaps means different things to different physicians. To the authors it designates that stage of malnutrition when the protective mechanisms within the body can no longer compensate for a deficiency of the nutrients and vague symptoms begin to appear. These symptoms arise from a derangement in the tissues as a result of depriva-

tion of nutrients, and they vary greatly from patient to patient. Eventually the signs seen by the discerning physician are interpreted as pellagrous dermatitis or glossitis, beriberi neuritis or beriberi heart disease, hemorrhages or gingivitis of scurvy, cheilosis or the ocular symptoms of riboflavin deficiency. These characteristic symptoms, of course, make it possible for the physician to make an accurate diagnosis of a specific deficiency state and to realize that they occur as a response of the body tissues to the deprivation of certain specific chemical substances in food. In the earliest stages of vitamin discovery and research, there was a tendency to think of the vitamins as specific for definite symptoms. Thiamin became considered by some as a cure for nutritional nerve disorders, vitamin A as a cure for night blindness, vitamin C as a cure for scurvy, and nicotinic acid as a cure for pellagra. Those of us with wide clinical experience realized that the patient seldom had a single deficiency and stressed the importance of balance in nutrition. Long ago we learned to treat the patient for nutritive failure rather than for only the prominent presenting symptoms of a single vitamin deficiency. Nutritive failure is a much more inclusive term than pellagra, beriberi, scurvy, or riboflavin deficiency in that it connotes varying degrees of a mixture of nutritional deficiencies operating simultaneously. Nutritive failure does not have a specific physiologic connotation. It does not indicate why the nutrition has failed but simply that it has failed.

We find that treatment of a single deficiency with a specific chemical substance relieves the symptoms of that deficiency and in many instances restores the patient's strength and feeling of well-being to a remarkable degree. Nevertheless, the patient, not one disease, must be treated if he is to be completely rehabilitated.

At previous meetings of the Southern Medical Association one of us (T. D. S.) has discussed at considerable length the necessity of making a precise diagnosis and of administering adequate therapy if one is to relieve specific nutritional deficiency diseases. On each occasion stress has been placed on the fact that most patients have a group of deficiency diseases operating simultaneously and that none of the then-known vitamins would relieve the macrocytic anemia frequently associated with nutritive failure. This discussion will be concerned chiefly with folic acid which is the newest member of the vitamin B complex. Despite the fact that it was isolated and synthesized only a short time ago, it already has been found to play an important role in correcting the macrocytic anemia frequently associated with nutritive failure.

First of all it is well to state that for many years we had been testing compounds in a search for a potent anti-anemic substance of known chemical structure. Nicotinic acid, riboflavin, thiamin, pantothenic acid, pyridoxine, choline, inositol, para-aminobenzoic acid and uracil, singly and combined, administered orally and intravenously, showed no indication of having anti-anemic properties in human beings. Adenylic acid given orally or intravenously and glutathione administered orally had no anti-anemic effect. Cystine, uracil, betaine, pimelic acid, B-alanine, 1-histidine, 1-proline, 1-tyrosine, creatine and guanine, combined and given orally likewise had no anti-anemic effect. Many times I have stressed the fact that none of these substances relieved the macrocytic anemia frequently associated with nutritive failure.

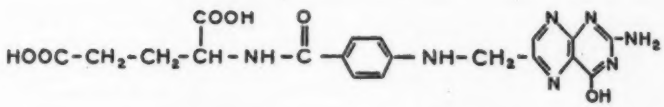
Turning now to the more positive aspect of this work, we have learned that a synthetic compound and some related compounds produce varying degrees of hemopoiesis in certain types of macrocytic anemia. The L. casei factor, commonly called folic acid, has had the appropriate chemical term *Pteroylglutamic acid* assigned to it, and its structural formula is given in *Fig. 1.*

In the past fifteen months my associates and I have obtained a favorable therapeutic response to synthetic folic acid in the cases shown in *Table 1.*

The cases shown in *Table 2* did not respond to folic acid therapy.

A favorable therapeutic response can be detected in the bone marrow soon after therapy is initiated. The numbers of megaloblasts and early erythroblasts decrease progressively and the late erythroblasts and normoblasts increase. Eventually the normal ratio of nucleated red blood cells and white blood cells of the marrow is reestablished. Reticulocytosis can be detected in the bone marrow sometimes as early as the second day. Its beginning is frequently detected in the

LIVER L. CASEI FACTOR



N-[4-[[(2-amino-4-hydroxy-6-pteridyl)methyl]amino]benzoyl]glutamic acid

Fig. 1

Formula for pteroylglutamic acid (L. casei factor, folic acid).

peripheral blood from about the third to the fifth day of therapy. A peak is reached on the sixth to tenth day. The height of the rise varies from case to case depending upon the severity of the anemia, the adequacy of the dose, and the presence or absence of complications. In addition to the reticulocytosis there is a gradual increase in the number of red blood cells and in the hemoglobin. When thrombocytopenia and leukopenia are present, and they frequently are, increases toward normal are to be expected. The following graphic response gives one the usual picture of remission (*Fig. 2*).

Type of Anemia	Number of Cases
Addisonian pernicious anemia	78
Tropical sprue	76
Non-tropical sprue	2
Nutritional macrocytic anemia	46
Macrocytic anemia of pregnancy	3
Nutritional leukopenia	8
Cirrhosis of the liver with macrocytic anemia (7 cases did not respond)	5

Table 1

Type of Anemia	Number of Cases
Microcytic hypochromic anemia	12
Anemia associated with leukopenia	9
Aplastic anemia	10
Drug idiosyncracies or post infectious leukopenia	16
Idiopathic steatorrhea	4

Table 2

The clinical improvement has been discussed and will not be repeated here. We have been very much interested in just how folic acid functions to produce a change in the bone marrow cells. Already we have done intensive studies directed toward this problem, but this report deals briefly with some of the observations that we have made while studying substances closely related to the L. casei factor.

Hutchings and his associates[1] obtained a substance from a fermentation residue which supported the growth of Lactobacillus casei about as well as did the liver L. casei factor, (folic acid) but was only 6 per cent as effective as liver L. casei factor for the Streptococcus faecalis. Angier and his associates[2] were able to isolate dl-liver L. casei factor from the fermentation factor by subjecting the latter to anaerobic alkaline hydrolysis; and further studies by the same group determined that the fermentation factor contained three molecules of glutamic acid, as compared to one in L. casei factor.

The structural formula of the fermentation factor is given in *Fig. 3.*

Spies[3] has successfully treated a case of pernicious anemia in relapse with the fermentation factor isolated from natural sources. Three milligrams were given intramuscularly daily for eleven days. Reticulocytes increased from 1 per cent to 2.6 per cent on the fifth day and reached a peak of 5.4 per cent on the tenth day, and dropped to 2.6 per cent on the sixteenth day. Appreciable increases in red blood cells and hemoglobin and clinical improvement followed.

Binkley and his associates[4] obtained a substance from yeast that had high hemopoietic

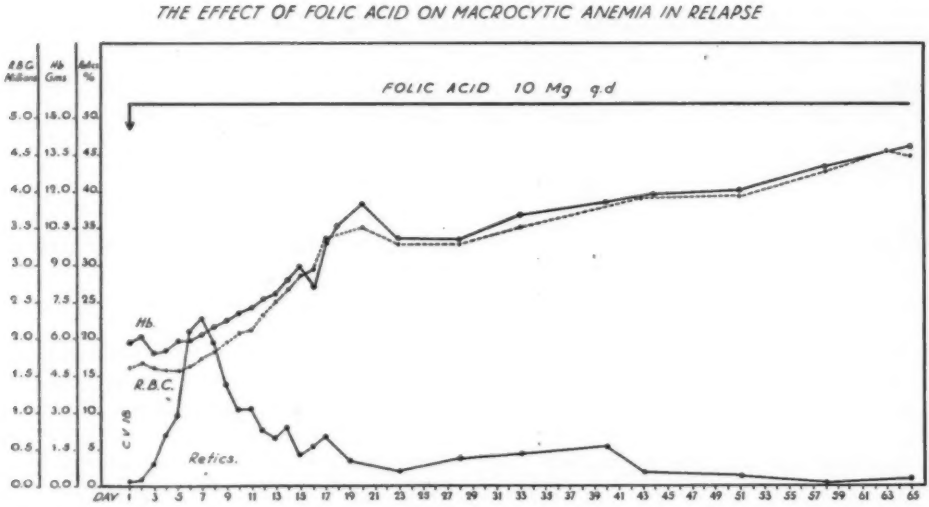


Fig. 2

activity for the chick but that failed to support the growth of Lactobacillus casei. However, after subjecting the yeast concentrate to enzymatic digestion, it became highly effective in stimulating the growth of L. casei. Then, through the procedures used for the isolation of L. casei factor from liver, they obtained a crystalline compound from the digested yeast concentrate which had the same growth stimulating characteristics as the liver L. casei factor. It was concluded that the L. casei factor in yeast existed as a conjugate, and in such form was available to the chick but not to the micro-organism.

Pfiffner and his associates[5] isolated a crystalline substance from yeast which had the growth stimulating characteristics of the yeast concentrate referred to above. It possessed certain physico-chemical characteristics that were qualitatively similar to those of crystalline liver L. casei factor, but its molecular size appeared to be 2.8 times that of crystalline liver L. casei factor, and it differed in structure by having 7 molecules of glutamic acid rather than one. Enzymatic digestion of the crystalline compound yielded L. casei factor (vitamin Bc or folic acid). The term assigned to the compound is vitamin Bc conjugate. The authors[6] have used it* in the treatment of one additional case of nutritional macrocytic anemia and one additional case of addisonian pernicious anemia which responded as follows:

FERMENTATION L. CASEII FACTOR

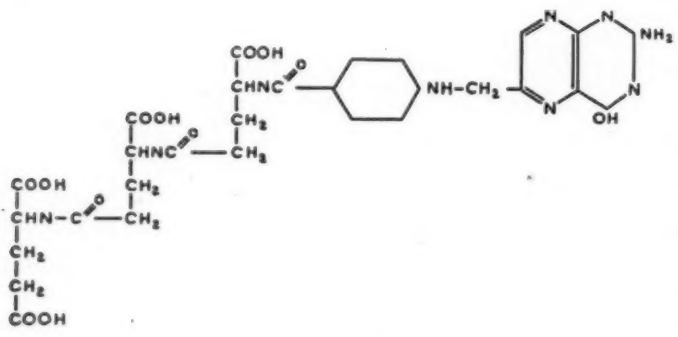


Fig. 3

*Furnished by Dr. E. S. Sharp of Parke, Davis and Company.

Case 1.—Nutritional macrocytic anemia, T. D., a white man of 70 years, had previously responded to reticulogen in 1945 and to folic acid in May 1946. On readmission in October, 1946, his blood counts were: red cells 1.99 million; hemoglobin, 8.0 gram; reticulocytes, 0.8 per cent; and white cells, 5,600. Fourteen milligrams of vitamin Bc conjugate were given orally daily for nine days. The reticulocyte count was 5.2 per cent on the seventh day of therapy, 9.5 per cent on the ninth day, and two days later reached a peak of 14.7 per cent. At the end of fourteen days the blood counts were: red cells, 2.28 million; hemoglobin, 8.9 gram; and reticulocytes, 6.6 per cent. Clinical improvement was rapid and was comparable to the response to folic acid (synthetic L. casei factor).

Case 2.—Pernicious anemia in relapse. J. B., a white man of 44 years, had on previous occasions since 1944 responded to reticulogen and to synthetic folic acid. Fourteen milligrams of Bc conjugate were given daily for ten days orally without any hemopoietic response; during the next ten days, 5 mg. folic acid was given daily by mouth and there was no response. Then Bc conjugate in daily doses of 28 mg. was given for seven days.

Blood counts prior to treatment were: red cells, 2.32 million; hemoglobin, 8.3 grams; reticulocytes, 1.0; and white cells, 3,950. While taking the 14 mg. dose of Bc conjugate daily, the highest reticulocyte count was 3.5 per cent on the tenth day; during the ten days that folic acid was given, the reticulocyte count was the highest, 4.0 per cent, on the fifth day; then on the seventh day of Bc conjugate therapy, at a level of 28 mg. daily, the reticulocyte count was 7.1 per cent. At that time symptoms of severe enteritis developed and the study was discontinued before a full response to therapy could be expected.

Bethell, Swendseid, Bird, Meyers, Andrews and Brown[7] have reported that in three patients with pernicious anemia and in one patient with a macrocytic anemia which developed following gastrectomy, no therapeutic response occurred following the administration of vitamin Bc conjugate. In a paper read before the New York Academy of Science[8] Heinle, Nelson, Nelson, and Welch reported similar observations. The authors believe that the failure of these investigators to get a favorable hemopoietic response may have been due to their having used too small a dose. From our experience and from that of Dr. E. A. Sharp[9] who also has obtained a favorable response in persons with pernicious anemia following the administration of vitamin Bc conjugate, it seems apparent that a considerably larger dose than that used by these investigators may be required.

Bethell and his associates observed also that the administration of the vitamin Bc conjugate to patients with pernicious anemia was not followed by an increase in the urinary excretion of the free vitamin as is the case when it is given to normal persons, whereas the oral administration of folic acid was followed by prompt and great increase in the urinary excretion of this substance in both normal persons and in persons with pernicious anemia. These investigators believe that the conjugated forms of folic acid are not efficiently converted to the free state in persons with addisonian pernicious anemia. We, likewise, have found that the administration of vitamin Bc conjugate is not followed by any increase in the amount of L. casei factor in the urine. Within 24 hours after the administration of the L. casei factor, however, there was a great increase in the urinary excretion as is shown in *Fig. 4.*

Pteroic acid and glutamic acid are of great interest because of their chemical relationship to the folic acid molecule. Their chemical formulas are given in *Figs. 5* and *6.*

As can be seen, pteroic acid differs from folic acid (pteroylglutamic acid) by the absence of a molecule of glutamic acid. In their studies on the synthesis of folic acid, Angier and his associates[2] found that by substituting p-aminobenzoic acid for p-aminobenzoyl-1(+)-glutamic acid in the process, a compound was produced that had growth activity for Streptococcus fecalis but not for L. casei and the chick. The term assigned to that compound is pteroic acid.

We obtained a small quantity of pteroic acid* and gave a patient with nutritional macrocytic anemia 5 mg. daily intramuscularly for eight days and 3 mg. for one day. There was no response. Blood counts at the beginning of therapy were: red cells, 0.98 million; hemoglobin, 4.4 grams; and reticulocytes, 2.6 per cent; and on the last day the counts were: red cells, 1.01 million; hemoglobin, 4.0 grams; and reticulocytes, 1.6 per cent. The patient subsequently responded to 5 mg. per day of folic acid.

The oral administration of 500 mg. of glutamic acid daily for ten days to a patient with pernicious anemia did not produce a hemopoietic response. This failure to respond to pteroic acid or to glutamic acid suggests that the cells of the body cannot unite them, as they are united in folic acid, and thus produce folic acid.

*Furnished by Dr. Y. SubbaRow, Lederle Laboratories.

Xanthopterin,* as can be seen in the formula (*Fig. 7*), is somewhat similar in formula to the L. casei factor. A dose of 500 mg. daily was administered orally for 10 days to 2 patients with pernicious anemia. No response occurred. Subsequently, 5 mg. of folic acid were administered daily to these 2 patients and blood regeneration was noted soon thereafter. These observations indicate the specificity of the molecule.

Since we first learned that folic acid had antianemic properties, we have been interested in determining its limitations. In November 1945, in association with Drs. C. F. Vilter and R. W. Vilter, one of us (T. D. S.) undertook a study to answer the following questions: (1) Can the anemia of pernicious anemia and of sprue be controlled over a long period of time as successfully with folic acid as they can be with liver extract? (2) Will folic acid prevent the development of the neurologic manifestations of pernicious anemia or control them after they have appeared?

The twenty-six subjects selected for study in-

*Furnished by Dr. Y. SubbaRow, Lederle Laboratories.

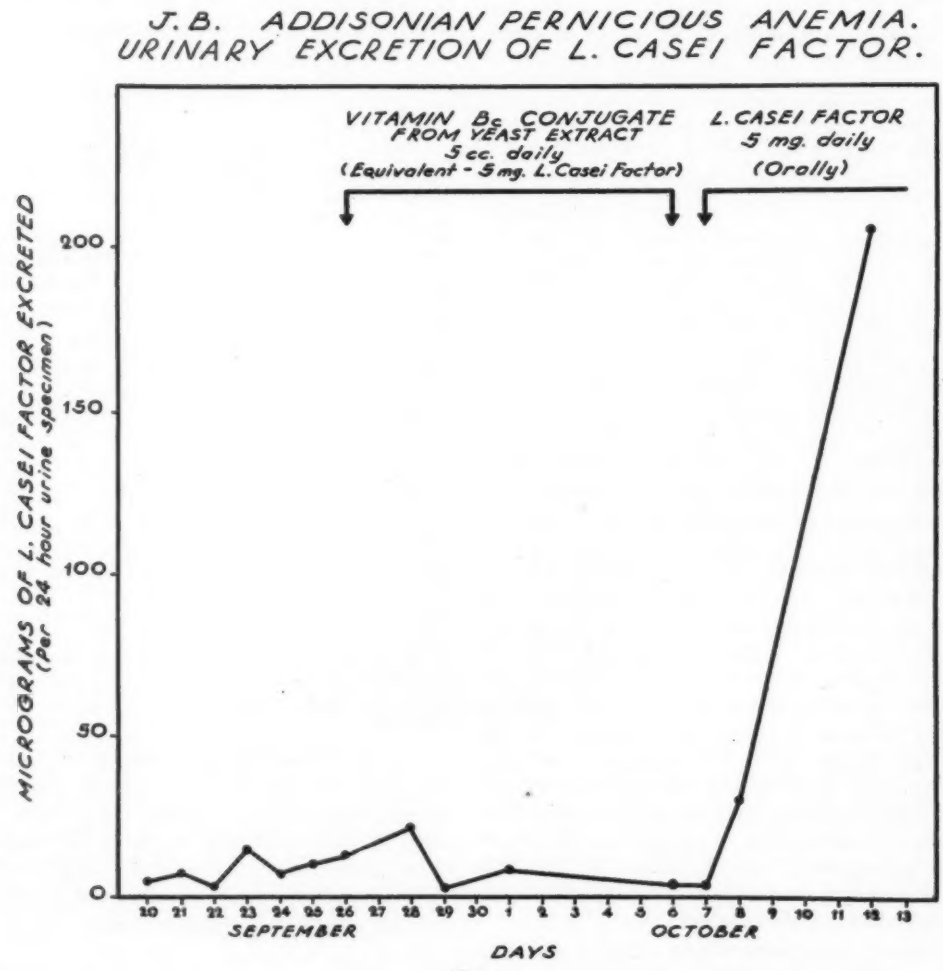

J.B. ADDISONIAN PERNICIOUS ANEMIA.
URINARY EXCRETION OF L. CASEI FACTOR.
VITAMIN Bc CONJUGATE FROM YEAST EXTRACT
5 cc. daily
(Equivalent - 5 mg. L. Casei Factor)
L. CASEI FACTOR
5 mg. daily
(Orally)
MICROGRAMS OF L. CASEI FACTOR EXCRETED
(Per 24 hour urine specimen)
200
150
100
50
0
20 21 22 23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8 9 10 11 12 13
SEPTEMBER
OCTOBER
DAYS

Fig. 4

PTEROIC ACID

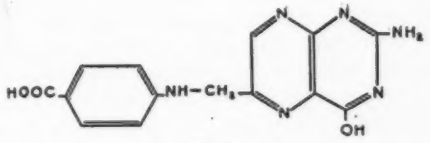


Fig. 5

cluded patients from the medical wards and the dispensary of the Cincinnati General Hospital and patients referred to us, usually because they were sensitive to liver extract. Twenty-one of these patients had pernicious anemia which had been controlled satisfactorily for from two to seventeen years by the injection of liver extract; three had pernicious anemia in relapse; two had sprue which had not been controlled satisfactorily by liver extract therapy. Of the twenty-four with pernicious anemia, fifteen had had combined system disease at some time in the past but, at the time they were started on folic acid therapy, there was evidence of active neurologic involvement in only one case. Before the study was initiated we explained to each patient that we proposed to discontinue the liver extract and to substitute folic acid. Each patient volunteered to cooperate in the study. Liver therapy was discontinued and each patient was given the folic acid orally. The majority of the patients received 30 mg. three times a week; a few were given 10 mg. daily and a few received 50 mg. daily. To insure their taking the medication as directed the patients were visited in their homes. Complete hematologic and neurologic examinations were made at suitable intervals.

For a period of one year the twenty-one patients with pernicious anemia in remission have been maintained in a hematologic state equivalent to that achieved previously on refined liver extract therapy. Two of the three patients with pernicious anemia in relapse had a satisfactory initial hematologic response but subsequently had a gradual relapse which was coincident with the development of neurologic disease. The third patient with pernicious anemia in relapse had a satisfactory remission and the increased blood levels have been maintained for a period of a year on folic acid therapy. The two patients with sprue have been maintained in normal hematologic equilibrium for one year. Bowel movements have decreased in frequency, they have gained weight, and are in better health than they were at any time during the period they were on liver extract therapy.

After from five to eight months on folic acid therapy, four of the twenty-four patients with pernicious anemia noted the gradual onset of numbness and tingling sensations in the hands and feet, unsteadiness of gait and moderate stiffness in the extremities. Neurologic signs appeared and gradually progressed until there was definite evidence of involvement of the posterior columns and the peripheral nerves in four cases, in the lateral columns in three, and the cerebral cortex in one. None of the patients had had neurologic involvement of any type when a diagnosis of pernicious anemia was first made or

GLUTAMIC ACID

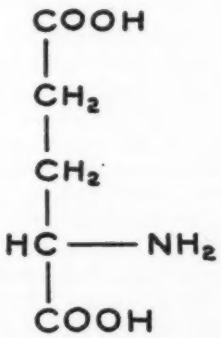


Fig. 6

XANTHOPTERIN

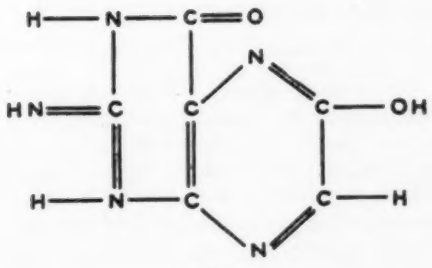


Fig. 7

when folic acid therapy was initiated. The neurologic status of a patient who had signs of active peripheral neuritis at the beginning of the study remains unchanged after one year on folic acid therapy. No subjective or objective improvement occurred when the dosage of folic acid was increased to from 50 to 500 mg. daily whereas the intramuscular injection of 5 c. c. of liver extract daily was followed by satisfactory convalescence in three of the patients and the fourth is showing more gradual improvement.

Conclusions as to the effectiveness of folic acid in the maintenance of patients with pernicious anemia should not be drawn without further study. Our observations up to the present time, however, suggest that folic acid will maintain the increased red blood cell and hemoglobin levels which have been produced either by folic acid or by liver extract in most cases and that it may control sprue more effectively than does liver extract. Although there is no obvious explanation for the decrease in erythrocytes and in hemoglobin which followed remission in two of the three patients who were in relapse at the time folic acid therapy was initiated, it is conceivable that the folic acid caused depletion of some other nutrient essential for erythrocyte maturation. Liver extract produced a remission in these patients only after two months of persistent therapy. From this study it seems evident that folic acid does not always prevent the occurrence of combined system disease nor does it reverse the degenerative process once it has begun. These observations suggest that until more is known of the mode of action of folic acid in hemopoiesis and until a factor essential to the preservation of the central and peripheral nervous systems is found, liver extract is the safest and most effective therapeutic agent for the routine treatment of pernicious anemia.

SUMMARY AND CONCLUSIONS

The present studies extend somewhat our working hypothesis that deficiencies of the water-soluble vitamins tend to be multiple in nature and that to rehabilitate the affected person it often is necessary to treat him for a number of diseases which are operating simultaneously.

This paper stresses the recent work done on L. casei factor (folic acid), the newest member of the water-soluble group of vitamins and points out that it is effective in producing a stimulation of the bone marrow in patients who have addisonian pernicious anemia, nutritional macrocytic anemia and the macrocytic anemia of sprue, pellagra and pregnancy, in relapse.

Our recent experiences with synthetic L. casei factor and related compounds again lead us to include pernicious anemia in the group of macrocytic anemias which respond to folic acid. We realize that the natural pathogenesis of addisonian pernicious anemia is somewhat different from that of the macrocytic anemia of sprue, pregnancy, pellagra and from nutritional macrocytic anemia. The authors have considered that folic acid works as a part of an enzyme system and as yet we have observed nothing which led us to change our point of view. We are dubious that it will protect indefinitely against the neural disturbances which frequently develop in pernicious anemia.

We must keep in mind that there are many substances that act similarly. Vitamin Bc conjugate, which differs chemically from the L. casei factor by containing 6 more molecules of glutamic acid, is not excreted in the urine of persons with pernicious anemia, whereas the L. casei factor itself is excreted promptly and in great amounts. The Bc conjugate and the L. casei factor, if given in sufficient amounts, are capable of producing a hemopoietic remission. All investigators in the field have been concerned with a satisfactory explanation for the fact that a large amount of folic acid is required to produce a satisfactory hemopoietic response, whereas relatively little of the active substance of a potent liver extract is required.

Since folic acid conjugates are present in food and are probably stored in our bodies and since the normal person and persons with nutritional macrocytic anemia and the macrocytic anemia of sprue, in contrast to the person with pernicious anemia seem able to liberate the L. casei factor, is it not likely that liver extract and substances that act similarly may contain a substance capable of liberating from the tissues the substances which in turn act on the cellular components in the bone marrow? Could it not be that the ineffective utilization of the naturally occurring conjugate of folic acid by patients with

addisonian pernicious anemia is secondary to a deep-seated biochemical defect?

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DISCUSSION (*Abstract*)

Dr. William H. Sebrell, Jr., Bethesda, Md.—I want to express my admiration for the excellent work in this field of nutrition which Dr. Spies and his associates have done in making physicians aware of the importance of deficiency diseases and malnutrition, and the very fine accomplishments of his group in rehabilitating individuals who otherwise were an economic loss to their community.

I would like to emphasize the difficulty of diagnosis. Early diagnosis is exceedingly difficult. If you wait for something that resembles a textbook picture of deficiency disease, the patient is very ill. Also, many individuals never progress to such a severe stage, and many diagnoses may be missed.

Diagnosis is very difficult in the early stages. The symptoms are, as Dr. Spies pointed out, non-specific in many instances. They may or may not be due to a deficiency. The laboratory cannot help very much. Therefore one has to rely very largely upon his clinical judgment and the patient's history.

Folic acid has certainly been one of the most interesting developments in the field of nutrition, and is far and away the most important of recent developments. It has reopened our interest in the field of blood formation and the anemias. Here is a substance which has a very potent effect on bone marrow, which as Dr. Spies told you is not the erythrocyte maturation factor, and many people believe that this substance is very likely to turn out to be fundamental to all cellular activity. It looks like a promising field in which we are going to see a great deal of work, because we still do not know how this remarkable substance exerts its effects, or even what its potentialities may be in many other conditions.

I would like to conclude my brief remarks with an expression of admiration for Dr. Spies' very fine contributions to this field.

FARM PRACTICES INFLUENCING THE INCIDENCE OF MULTIPLE SCLEROSIS*

By JAMES ASA SHIELD, M.D.†
Richmond, Virginia

Man's kinship with and dependence upon the soil are expressed by Dr. V. G. Simkovitch[1]: "Go to the ruins of ancient and rich civilization in Asia Minor, Northern Africa, or elsewhere. Look at the unpeopled valleys, at the dead and buried cities, and you can decipher there the promise and the prophecy that the law of soil exhaustion holds in store for all of us... Depleted of humus by constant cropping, land could no longer reward labor and support life, so the people abandoned it. Deserted, it became a desert; the light soil was washed by the rain, and blown around by the shifting winds."

In the occurrence of multiple sclerosis in Germany, England, Northern Europe in general, and the United States where large amounts of inorganic, incomplete chemical fertilizers are used by farmers, in contrast to the absence of multiple sclerosis in China, Japan, and India where natural fertilizers or manures are used, nature presents us with a challenging fact.

Farm practices which influence the total quality of the crop and, in turn, the quality of man's food, are the concern of this paper. Thus, the soil as a source of man's food, especially the trace elements, becomes the physician's problem. The doctor must demand that the agriculturist produce a food that will meet the multiple protoplasmic needs for optimal growth, development and function. Prescribing a good diet is not enough. There is a very wide variation in the composition of fruits, vegetables, grains and meat, milk and eggs, when produced on different soils, in different sections of the country, on different farms, or even on different fields of

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†Assistant Professor of Neuropsychiatry, Medical College of Virginia, Richmond.

the same farm. The Peckham Pioneer Health Service Centre in England discovered that feeding families in the Centre with ordinary, so-called balanced food diet bought from a shop was not enough. They were forced to grow the food themselves and to use not new methods but the ancient method of returning waste to the soil. Man's interference with the perfect balance between the natural processes of growth and decay may be largely responsible for the predicament of our malnutrition, in spite of adequate diet by the present standards.

A fertility that is optimal for the production of nutritional foods depends not only upon various elements, humus, physical structure, tillage, moisture, sunlight, but also upon the fauna and flora of the soil. Micro-organisms play an important part in making air nitrogen available to plants and in the decomposition of humus. Mycoorhizal fungi surround rootlets and stimulate metabolism as a living fungus bridge which connects soil and sap.[2]

In this discussion our interest centers in deficiency of the trace elements (iron, cobalt, copper, zinc, chlorine, sodium, magnesium, manganese, sulphur, silver, boron, nickel, aluminum, arsenic, fluorine, iodine) and all protoplasmic needs known and unknown that are influenced by farm practices. The soil is being depleted of its fertility by large urban populations and industries. The maintenance of fertility is a farmer's problem, but the food that the American people consume is everyone's problem. Farm practices must protect and maintain this fertility in order that we may be able to buy quality foods that have the capacity to give optimal nutriment to our bodies.

The soil of England was being depleted in 1836 when Carswell[3] first noted a multiple sclerotic pons and cord, as an interesting neurological specimen. The soils of France were being depleted in 1839 when Cruveilhier[4] described the neuropathology of multiple sclerosis and gave two case histories. A few years later in France, Charcot[5] gave us a description of the clinical and pathological pictures of multiple sclerosis.

The soil of Germany was being depleted in 1840 when a chemist roughly "analyzed a human body."[6] He found calcium, nitrogen, phosphorus and potassium in addition to water. His crude methods showed the same elements to be present qualitatively in plants and animals, and he concluded that as long as these elements were replaced in the soil in generous quantities, neither plants nor people would suffer from malnutrition.

Thus, we see that multiple sclerosis, depletion of soil, and the introduction of inorganic chemicals, as a treatment for the soil were all introduced to man between the years of 1836 and 1840.

A century ago, the prevailing practice in agriculture was to take from the soil without adequate replacement of its store of minerals and humus. Cropping had become so intense in Germany, France and England that nature could not replenish the soil. The natural process of laying down top soil was too slow. The introduction of inorganic chemicals resulted in quantity production of food. The incompleteness of the chemicals used, and their tendency to accentuate incipient deficiencies of certain other elements in the soil, is now being recognized by agricultural research.[7]

There have been many suggested causes for multiple sclerosis, but there has been no proven etiological factor to explain its incidence. Pathologically, it is a demyelinating disease, and there is some agreement that the acute lesions are characterized by perivascular infiltration, edema and local glial proliferation,[8] producing the coming and going of symptoms, exacerbation of the old and appearance of the new, resulting in a chronic degeneration of the nerve parenchyma.

My observation has been in agreement with other neurologists in regard to the conditions that precipitate and influence exacerbation of this illness, namely, pregnancy, infections, inorganic chemicals, trauma, strains and stresses, exposure, vaccines, marriage, emotional upsets, lumbar punctures, and gross dietary restrictions. There is one common feature in all of the various things which precipitate the attack, increased demand on the body.

It follows that these factors can only precipitate the illness in individuals who are vulnerable. The geographic distribution of the incidence points out those who are relatively protected and those who are candidates for multiple sclerosis when hit with sufficient force by a precipitating factor.

WHO ARE THE VULNERABLE?

Multiple sclerosis, though thought by many physicians to be rare, and almost unheard of by the public, caused 1,301 deaths in the United States in 1944 as compared with 1,361 deaths from infantile paralysis and 2,045 deaths from pernicious anemia.[9] Multiple sclerosis is both less recognized by the physician and more crippling to the patient than infantile paralysis. In the New York City area in the first 46,875 selectees examined, 29 were found to have multiple sclerosis while 734 had tuberculosis, 170 had diabetes, and 8 had pernicious anemia. During 1933 a study of chronic illnesses in 113 New York hospitals revealed 1,050 cases of multiple sclerosis, and 551 cases of pernicious anemia among a total of 573,623 cases. A survey in Switzerland disclosed 36 multiple sclerosis cases per 100,000. In one locality there were 70 per 100,000. A survey in England and Wales showed 16 per 100,000.[10]

In order that we might have a better concept of the incidence of multiple sclerosis in the United States, I obtained, through the courtesy of the U. S. Department of Public Health, the statistics on the number of deaths that occurred in each state during the year of 1944. I also obtained this data on infantile paralysis and pernicious anemia during the same year for comparison.

There is the high urban and low rural incidence of the disease. Contrary to the general impression, it is shown that multiple sclerosis is

MULTIPLE SCLEROSIS

Year	Country	No. deaths	Rate
1942	U. S.	1,385	1 per 100,000 pop.
1943	U. S.	1,399	1 per 100,000 pop.
1944	U. S.	1,301	1 per 100,000 pop.
1931-1942	Survey of Baltimore		11.8 per 100,000 pop.

Table 1

MULTIPLE SCLEROSIS

Year	City	Incidence
1918	Philadelphia	23 per 100,000 registrants examined
1918	Boston	10 per 100,000 registrants examined
1918	New York	13 per 100,000 registrants examined
1918	Chicago	10 per 100,000 registrants examined

Table 2

MULTIPLE SCLEROSIS

In World War I registrants for the draft, there was an incidence of 10 per 100,000 cases examined.

In 1918 there was an urban rate of 12 per 100,000 and rural rate of 8 per 100,000 registrants examined.

Table 3

INCIDENCE OF DEATH PER 100,000 POPULATION OF THE NEW ENGLAND STATES

	Multiple Sclerosis	Poliomyelitis	Pernicious Anemia
Maine	1.5	0.0367	2.7
New Hampshire	3.3	2.2	3.1
Vermont	1.6	0.645	2.58
Massachusetts	1.4	0.42	1.8
Rhode Island	1.8	0.014	1.3
Connecticut	1.21	0.57	0.999

Table 4

INCIDENCE OF DEATH PER 100,000 POPULATION OF THE MIDDLE ATLANTIC STATES

	Multiple Sclerosis	Poliomyelitis	Pernicious Anemia
New York	1.29	2.8	1.4
New Jersey	1.07	1.39	1.1
Pennsylvania	1.18	1.26	1.8

Table 5

INCIDENCE OF DEATH PER 100,000 POPULATION OF THE NORTH EAST STATES

	Multiple Sclerosis	Poliomyelitis	Pernicious Anemia
New England	1.557	.5355	1.78
Middle Atlantic	1.2025	2.021	1.512

Table 6

not rare in the Southern states. I believe there is a tendency for the prevalence of multiple sclerosis to be in direct ratio with the number of neurologists in the respective states. I have seen patients from every Southern state east of the Mississippi. These figures are on the low side due to diagnostic error and intercurrent infection's being recorded as the cause of death in patients with multiple sclerosis.

Multiple sclerosis could not well be a deficiency disease in the usual concept. The Chinese caloric intake is from 2,000 to 2,500 per day. The Chinese diet is deficient in calcium, in vitamins, proteins and fats. Yet the Chinese do not have sclerosis of their nerves, their blood vessels, blockage of their veins or hypertension. They do not have kidney or gallstones. They have a limited food supply, but this food is better suited to meet man's body needs as evidenced by the

INCIDENCE OF DEATH PER 100,000 POPULATION OF THE EAST NORTH CENTRAL STATES

	Multiple Sclerosis	Poliomyelitis	Pernicious Anemia
Ohio	1.3	1.29	2.0
Indiana	1.8	0.89	2.29
Illinois	1.053	0.52	2.24
Michigan	1.43	0.87	2.09
Wisconsin	1.69	1.09	2.89

Table 7

INCIDENCE OF DEATH PER 100,000 POPULATION OF THE WEST NORTH CENTRAL STATES

	Multiple Sclerosis	Poliomyelitis	Pernicious Anemia
Minnesota	1.64	1.48	2.24
Iowa	2.27	0.76	3.17
Missouri	1.005	0.373	2.15
North Dakota	1.92	0.38	1.73
South Dakota	1.7	0.56	2.6
Nebraska	1.54	0.85	2.56
Kansas	0.96	0.602	3.97

Table 8

INCIDENCE OF DEATH PER 100,000 POPULATION OF THE NORTH CENTRAL STATES

	Multiple Sclerosis	Poliomyelitis	Pernicious Anemia
East North Central	1.325	0.9056	2.267
West North Central	1.487	0.76	2.66

Table 9

INCIDENCE OF DEATH PER 100,000 POPULATION OF THE SOUTH ATLANTIC STATES

	Multiple Sclerosis	Poliomyelitis	Pernicious Anemia
Delaware	0.806	2.125	2.125
Maryland	1.005	1.256	0.603
District of Columbia	1.085	1.447	0.036
Virginia	0.65	2.086	0.93
West Virginia	0.475	1.41	1.35
North Carolina	0.484	1.212	0.484
South Carolina	0.333	0.79	0.508
Georgia	0.27	0.473	0.765
Florida	0.85	0.45	1.25

Table 10

INCIDENCE OF DEATH PER 100,000 POPULATION OF THE EAST SOUTH CENTRAL STATES

	Multiple Sclerosis	Poliomyelitis	Pernicious Anemia
Kentucky	0.52	1.92	2.56
Tennessee	0.25	0.57	1.5
Alabama	0.296	0.445	0.519
Mississippi	0.254	0.406	0.914

Table 11

INCIDENCE OF DEATH PER 100,000 POPULATION OF THE WEST SOUTH CENTRAL STATES

	Multiple Sclerosis	Poliomyelitis	Pernicious Anemia
Arkansas	0.294	0.294	1.0
Louisiana	0.391	0.522	0.522
Oklahoma	0.872	0.41	1.538
Texas	0.336	0.8157	0.929

Table 12

absence of degenerative diseases, in spite of the high incidence of infectious diseases. Their limited supply of food is grown by farmers who do not use inorganic chemicals which, in the light of present knowledge, tend to disturb the chemical balance of the soil and, in turn, to disturb the mineral and chemical content of the crops and, thus, affect the health of the animals that feed on the crops. The Chinese do not have multiple sclerosis.

What evidence is there that absence or insufficiency of trace elements affect plants and animals?

Beeson[11] writes

"The recent increase of interest in the distribution of nutritional trouble in plants and animals is a natural sequence to the earlier work of diagnosing and classifying these troubles and their symptoms."

He gives three United States maps: first, of the occurrence of boron and manganese deficiencies in plants; second, of the occurrence of copper, iron, magnesium and zinc deficiencies in plants; and third, of the occurrence of mineral nutritional diseases in animals, namely, cobalt, copper and iron, causing nutritional anemias, calcium and phosphorus causing bone diseases, selenium toxicity and grass tetany.

The 1943 report of the Administrator of Agricultural Research[7] discussed the soil-plant nutritional relationship.

"Cattle in areas where cobalt is deficient in native plants become gaunt owing to loss of appetite, become listless and anemic; the hair coat becomes rough and the skin is scaly. After extended exposure to the deficiency, muscular atrophy develops and death occurs. In North Carolina cobalt deficiency is accompanied by a low manganese content of the forage while in Massachusetts the iron content is low. These multiple deficiencies have prevented a normal development of dairy and beef cattle. Trouble with sheep and dogs also occurs in North Carolina in those areas where the soil is depleted of certain trace elements."

INCIDENCE OF DEATH PER 100,000 POPULATION OF THE SOUTH

	Multiple Sclerosis	Poliomyelitis	Pernicious Anemia
South Atlantic	0.589	1.145	0.793
East South Central	0.3306	0.8417	1.38
West South Central	0.426	0.623	0.96

Table 13

INCIDENCE OF DEATH PER 100,000 POPULATION OF THE MOUNTAIN STATES

	Multiple Sclerosis	Poliomyelitis	Pernicious Anemia
Montana	1.304	1.956	1.304
Idaho	0.43	1.72	0.215
Wyoming	1.28	0.427	0
Colorado	2.36	2.19	1.05
New Mexico	0.206	0.823	0.823
Arizona	0.52	0.174	1.22
Utah	0.689	0	0
Nevada	0	0.767	0

Table 14

INCIDENCE OF DEATH PER 100,000 POPULATION OF THE PACIFIC STATES

	Multiple Sclerosis	Poliomyelitis	Pernicious Anemia
Washington	1.718	1.61	0.99
Oregon	1.44	1.78	2.37
California	0.741	1.294	0.49

Table 15

INCIDENCE OF DEATH PER 100,000 POPULATION OF THE WEST

	Multiple Sclerosis	Poliomyelitis	Pernicious Anemia
Mountain	1.153	1.178	0.727
Pacific	0.991	1.41	0.78

Table 16

MULTIPLE SCLEROSIS

China		Incidence
Estimated population	450,000,000	0 per 100,000 population
Rural population 90 per cent.		
Urban population 10 per cent.		

Table 17

A survey was made of pastures and hay lands in the Northeast where an ailment in cattle, called grass tetany, has been reported to be associated with intensive fertilization with nitrogen, potash and phosphate.

What is the relationship of mineral imbalance in soil, plants, and animals to multiple sclerosis? Ferraro[12] with repeated administration of potassium cyanide rather regularly produced pathologic changes characteristic of multiple sclerosis. Other chemicals such as injection of sulfanilamide have been followed by encephalomyelitis.[13] Carbon monoxide poisoning has precipitated a progressive multiple sclerosis.[14]

The chemical substances such as sulfanilamide, potassium cyanide, lead, arsenic, arsphenamine, carbon monoxide and nitrous oxide have been found to disturb the structure of the central nervous system and produce pathology closely resembling post-infectious encephalomyelitis. In animals that live on food from soils depleted of some elements such as cobalt, manganese, iron, et cetera, or from soil over-fertilized with nitrates, potassium and phosphates, evidence of central nervous disease is found.

"The fertilization may possibly have accentuated incipient deficiencies of certain other elements in the soil. Preliminary results with new technics developed by the laboratory to study the effects of fertilizer and soil treatments on the mineral content of food and forage plants indicated that the amounts present in minute quantities in both hay and green vegetable crops are affected by liming and fertilization practices. On the basis of these results it seems possible that modifications of liming and fertilization practices may result in an increased content of some of the essential elements in soils and in the foods."[7]

Thus circumstantial evidence points to the fact that unbalanced chemical fertilizers, either too much or too little, or in the wrong combination of minerals, interfere with the soil's ability to supply the necessary chemical elements for healthy plants and animals.

"The plant needs varying amounts of different elements, much of one, little of another; for example, cotton as a general rule needs at least 36 pounds of nitrogen, equivalent to 225 pounds of natural nitrate per acre. Natural nitrate contains a large amount of nitrate nitrogen, 16 pounds per 100, but application of 100 pounds per acre would not be adequate to correct the nitrogen deficiency of the soil as measured by the requirements of the cotton plant. On the other hand, "saltsick" (an anemia) of cattle feeding on certain pasture land in Florida is prevented by addition of a trace of cobalt to the fertilizer treatment. Application of a little zinc oxide per tree, or driving one small zinc-covered nail in the orange tree, controls the mottle-leaf disease for a period of several years."[15]

Composts of vegetable matters and animal manure contain all of the known elements contained in the human cell and likely many other factors needed by the human cell that are as yet unknown to the biochemist. Thus, natural manures have the potential capacity to give to the depleting soils a complete fertilizer, while the chemical fertilizer is an incomplete food supply for the plant and will continue to be until we perfect and advance our knowledge of micro-biochemistry. Therefore, full quality food can be raised only on virgin soil and on soil that has been replenished by the refuse from all of its produce, both plant refuse and animal refuse.

The natural phenomenon that nature has presented for us of multiple sclerosis occurring here and not there, of its occurrence only in places where incomplete, commercial fertilizers are used in farm practices, presents for our consideration an experiment that has been carried on for over a hundred years. The subjects and potential subjects run into the millions. In order that we may have a limit to our geographic research, let us again take China, which has an estimated population of 450,000,000 people and is 90 per cent rural, and Germany, which, as greater Germany, had an estimated population of 79,000,000 people, with a rural percentage much smaller than China but which cannot be ascertained exactly: The time element in this experiment goes back a century. I do not think statisticians could question the number nor the time of this experiment. The Chinese farmer uses natural manure to produce his food; the German farmer uses inorganic chemical fertilizer to produce his food.

In 1840, von Liebig introduced the practice of applying inorganic material to the lands as fertilizer to replenish the depleted soils of Germany. This practice spread rapidly, and it became customary to apply mainly nitrates, potassium, phosphorus and lime. This incomplete fertilizer provided the major needs of the soil but overlooked the minor needs, minor though equally vital to the soil. On the other hand, in China the agricultural practice of intensified farming demanded that the depletion of these

soils be prevented. For centuries the Chinese have returned to the land the refuse of the products of the soil and the manures of animals including man. In Germany, before the war, multiple sclerosis was second only to syphilis in causing pathology of the nervous system. In China multiple sclerosis is such a rarity that authorities, such as Snapper and others, state that it is non-existent.

Where soils are depleted of certain minerals, biologists tell us of deficiency disease in plants, and they have found that very small amounts of the proper minerals added to the soil will eliminate the deficiency disease. For instance, in New Zealand, there was a soil-deficiency of cobalt in the grasses that made the pasture, which in turn caused the sheep to become paralyzed. The application of three or four pounds of cobalt per acre prevented the deficiency of the grass and eliminated the bush paralysis in the sheep.

In spite of our present knowledge of chemistry and of chemical fertilizer, we have not developed a technic to determine the minute traces of iron, cobalt, copper, boron, zinc, chlorine, sodium, magnesium, manganese, sulphur, and perhaps many other chemical substances that are needed by plants. It is true that plants can grow without these trace elements, but in order for them to give a complete optimal diet to the animals that feed on them, they must be grown on a soil that is completely fertile. Until we develop further knowledge of soil and plant chemistry, reliance can be placed only in the natural manures that give a more complete and balanced fertilization.

SUMMARY

We have a story of depleted soil. Man has attempted in the western world to correct this by the use of a few chemicals, inadequate to meet the full needs of plants and animals as they represent only a few of protoplasm's mineral needs. These chemicals have the capacity to disturb the mineral balance and the natural fauna and flora of the soil. People whose food comes from soils fertilized with chemicals appear to have more vascular diseases and more degenerative diseases. Multiple sclerosis is a degenerative disease. Its clinical characteristic of acute or subacute onset, with symptoms that improve or disappear, points to involvement of the circulation.

People who are fed on food produced by incomplete, inorganic fertilizers appear to be more liable to circulatory disease, more liable to central nervous system circulatory disease, more liable to vascular contrictions and dilatations, more liable to perivascular infiltration and to edema in the nervous system and to local glial proliferation due to disturbed mineral balance in their bodies and their blood streams. Therefore, when greater demands (the precipitating factors of multiple sclerosis) are put on their vulnerable bodies, these people develop the syndrome of multiple sclerosis.

The conclusion, thus, is indicated that the incomplete fertilization program carried on in Germany, England, Europe and the United States is contributing largely to the inadequacy of the quality of the diet, with deficiency of trace elements and unknown factors, contributing to and being largely responsible for the presence of multiple sclerosis in what appears to be ever-increasing incidence in the occidental world. It is also indicated that the use of complete and natural manures in the oriental world may be the factor in producing a more adequate diet, thus, explaining the orient's freedom from multiple sclerosis and some of the other degenerative diseases.

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Tucker Hospital

ADVANCED ALLERGIC EMPHYSEMA*

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In taking up the matter of handling asthmatic emphysema, we allergists are faced with two problems: (1) the correction of the specific and non-specific factors involved to prevent further aggravation of the process, and (2) the handling of the emphysema as such.

The technical correction of the original specific causal factors of chronic asthmatic emphysema is beyond the scope of this article, but a few observations are pertinent. Of course, animal dander, feathers, house dust, pollen, foods and non-specific factors must be cared for by appropriate environmental changes, hyposensitization and hospitalization where indicated.

A few words first as to hyposensitization. In as much as many of these cases have partially or almost completely lost their powers of resistance to specific antigens, extreme care must be employed to avoid treatment overdosage, and overdosage symptoms must be immediately appreciated, as recovery from them is apt to be slow and delayed. The usual overdosage warning of an anteceding treatment site local reaction here, is often absent. If local reactions do occur, they must be kept minimal. This tendency of overdosage to occur before the appearance of any treatment site reaction, and the extreme precautionary measures necessary to preclude more than minimal overdosage symptoms, makes the process of hyposensitization difficult, lengthy and tedious.

As a further complication in these advanced emphysema cases, the not infrequent absence of confirmatory diagnostic skin tests makes even the mere selection of treatment antigens a matter of thought.

This brings up the subject of negative skin tests, often encountered in this connection.

We allergists in the South see an appreciable number of negative skin test seasonal pollen hay fever cases. So it is not particularly difficult for us to conceive of negative skin test asthma of pollen origin.

On the other hand, our Southern house dust environments obviously are not so persistent or concentrated as those of the colder North, and our Southern cases having symptoms due to house dust etiology are usually of a higher grade of sensitivity, frequently giving positive skin tests even by the dermal method. Nevertheless, if we can have negative skin test hay fever and asthma due to pollen, I can see no reason why there is anything particularly extraordinary in asserting the probability of the existence of similar intradermally negative skin test asthma of house dust etiology in either the North or the South, analogous to our Southern negative skin test pollen cases. Certainly, I, for one, see such cases. I am using the term "house dust" here to include feathers, bedding, clothing, and so on.

Also, our Southern house dust vasomotor rhinitis cases occasionally show only mild intradermal reactions to potent 1:500 house dust or cotton linter extracts. I have had the good fortune to follow for four years a severe house dust vasomotor rhinitis patient whose intradermal skin tests have been repeatedly negative during this period, even to a 1:50 dilution of the dust extract which gave a practically perfect hyposensitization result.

Thus the failure to secure even intradermal positive skin tests, a fairly common state of affairs in advanced emphysema, I feel cannot rule out a specific allergy basis for the condition. A careful history plus environmental studies will usually soon incriminate one or more of our common antigens, and such specific antigens can usually subsequently be proven, at least clinically.

For example, the onset and continuances of relapses in these negative skin test cases of pollen etiology will be found coincidental with, and parallel to, the relapses in less ill positive skin test hay fever and asthma cases of identical

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*Chairman's Address, Section on Allergy, Southern Medical Association, Fortieth Annual Meeting, Miami, Florida, November 4-7, 1946.

pollen etiology, or if of house dust animal hair etiology, after appropriate contact.

Hence, in my opinion, it is an error to label these emphysema or even any chronic asthma case as due primarily to infection, or to be of so-called intrinsic origin, merely on the basis of negative skin test findings. In this connection, roentgen ray paranasal sinus shadows may mean only thickened allergic edematous membrane, and do not necessarily indicate infection.

The reason for the failure to secure positive intradermal tests is again beyond the scope of this article. My opinion here, is that such failure is due either to constant antigen dosage reception, in the face of actual low degree sensitivity, or to a loss of all resistance to the specific etiologic antigen or antigens involved, or to the protracted and frequent hypodermic epinephrine administration here often encountered.

Now, a further word as to the intradermal skin testing in advanced emphysema. These intradermal tests should never pass the serial titer compatible with the degree of sensitivity evinced by the clinical history or condition of the patient. Persistence in increasing the serial strength of testing extracts in order to secure a confirmatory diagnostic wheal, may, and often does, result in the production of status asthmaticus, or at least of prolonged overdosage symptoms requiring weeks for resolution.

History and observation of these cases will almost invariably reveal a mild vasomotor rhinitis occasionally denied by the patient, or considered of no consequence. Careful questioning, however, in these cases denying nasal annoyance, will often uncover a history of mild nasal blockage, rhinorrhea and sneezing, at times with some cough, seasonal or otherwise, often antedating by many years the initial frank asthmatic paroxysm of later life. Confirmatory diagnostic nasal polypi are occasionally seen in these cases and of course should be removed. We seldom see infection as more than a temporary factor and sinus surgery is almost never needed.

Hence, in our experience, the only solution for these cases is their handling on a most meticulous specific allergy basis.

In addition to the type of advanced emphysema following constant or repeated frequent severe asthma, there is another type not rarely seen, where the emphysema picture completely overshadows the asthma from the very onset, and where there is progressive dyspnea up to the point of moderate disability for years before asthma of any severity occurs. The story in this type of case is that of inattention to wheezing and mild attacks of asthma and increasing dyspnea over a period of years, and persistent physical exertion in the face of increasing dyspnea. Off hand, cases of this type suggest a cardionephritic diagnosis or complication which has to be ruled out by appropriate measures.

However, in every case of advanced emphysema in children that we have seen, without exception, the asthma has been frequent, persistent or severe.

Picturing now the condition of lungs partially plugged with thick tenacious mucus plus dilated poorly functioning pulmonary tissue and atalectases of variable number and extent, the following additional corrective measures directed to the care of the emphysema per se have given an appreciable number of our patients a considerable degree of benefit.

First comes what not to do. Speaking from personal experience the following measures have been useless or harmful: x-ray therapy; the iodides by mouth, intravenously or by instillation as oils into the bronchi; calcium; digitalis; atropine; narcotics; bronchoscopy; vaccines, stock or autogenous; and oxygen. We have had little or no experience with helium used regularly in this type of case. Belts or bandages in our hands have not proven satisfactory.

Our first corrective measure is rest to the overworked lung. Rest should and does assist in relieving bronchial spasm and non-productive cough. Any measure that will relieve bronchial spasm to any degree should certainly assist in the removal of unorganized mucous plugs. The duration of such rest cannot be foretold, but should continue until exertion necessary for economic recovery produces no dyspnea. This may require not days or weeks, but even months. My longest hospitalization for an advanced emphysema case has been four months with three months of subsequent home rest. Economic difficulties here, of course, are obvious. But if a

tuberculous case can give months or even years of his life for a similar purpose, I do not see why such rational remedial rest should be considered impractical for the chronic asthmatic.

Of course, we have difficulty in persuading patients along this line, but when such cooperation has been possible, the results certainly justify the procedure. And unless such lengthy rest can be secured, usually little can be done for these advanced emphysema cases as far as permanent relief is concerned.

Such rest or hospitalization, to be of any value, should be in a strict non-antigenic environment. A hospital ward full of flowers, feather pillows, irritating antiseptic and dressing odors, with open windows during a pollination season certainly does not meet the strict non-antigenic environmental conditions requisite in this condition. Mechanical pollen filtration is, of course, a help. Even better, when practical, is a residential removal from the causal antigenic atmospheric pollen, even if only temporary or seasonal.

Actual recumbency as a part of the rest in this condition is usually impossible at first, and is not essential.

As a natural corollary, I feel that every attack of asthma in the non-emphysematous case should be followed by rest until exertion does not produce dyspnea. This would seem to me the cardinal postulate for the prevention of emphysema.

The next most important step is the immediate limitation of even slight asthmatic paroxysms by the prompt administration of the appropriate antispasmodic. Frank asthma, if possible, should not be permitted to ensue or progress in emphysema cases, and in our opinion hypodermic epinephrine should be taken even on suspicion or on the slightest dyspnea not yielding at once to milder measures. The 1:100 epinephrine nebulizers (especially in portable form) are exceedingly useful in this connection and, in fact, are almost indispensable. I have never seen any harm result from their frequent daily usage for months on a stretch. Nor have I seen any discomfort or harm in the prolonged frequent use of hypodermic epinephrine, if the dosage used does not exceed the minimal relief requirement. Spasmodic coughing efforts should be similarly controlled.

Also, appropriate antispasmodic medication by mouth or hypodermically should be started promptly with the onset of every infectious coryza, even if the patient at the time is clear of even minimal asthmatic symptoms, and should be continued for several days, as a precautionary measure, as the common cold is not an infrequent cause of setback in these cases, and considerable damage can be done if asthma is permitted to develop from this source.

We have never seen any good from breathing exercises as such, but a few deep inhalations after epinephrine or aminophyllin administration have seemed to us to be of occasional help in mucus removal.

The various combinations of aminophyllin, ephedrine and a hypnotic by mouth, three times a day, assist, unless producing gastro-intestinal disturbances or insomnia. We have seldom found the enteric coated preparations of any greater value in this condition. The drug par excellence in emphysema, aside from epinephrine, in our hands has been intravenous aminophyllin. Its action on dilated lungs seems almost comparable, clinically, to the action of digitalis in dilated heart cases.

The success of this agent in relieving status asthmaticus has, of course, been generally known for years. What is not so well recognized is the fact that this intravenous medication can be used two, three or four times daily without harm for days and even for weeks. Hospital records show that the largest number of 3¼ grain intravenous aminophyllin injections we have ever given any one individual patient was as shown in *Table 1.*

The prolonged severe status asthmaticus that initiated the hospital residence of this patient failed to yield to our usual, and several unusual,

Nix Hospital, San Antonio, Texas, *Case No. 52686.*

1944	
May 7-31	66
June	77
July 1-26	53
	196 in 80 hospital days

Table 1

methods for handling this condition. Following slow partial relief after repeated intravenous aminophyllin dosages every few hours, this medication was persisted in for months in order to secure complete prolonged relaxation.

This case of advanced emphysema, a completely negative skin test case, made an excellent economic recovery, and has been doing rather hard occupational work ever since for over two years.

Advantage can be taken of the beneficial effects and harmlessness of often repeated intravenous aminophyllin by its similar intravenous application to cases of asthma less ill than those in frank status asthmaticus. I am referring here first to the asthma cases where chest moisture and dyspnea persist subsequent to an ordinary asthma attack, leading to a fairly reasonable presumptive diagnosis of early emphysema. Here a few daily intravenous doses work beautifully, coupled, of course, with rest.

Again, in all cases of emphysema that have been hospitalized on account of an intercurrent asthma, it is a standard measure with us to continue the intravenous aminophyllin injections once or twice daily for weeks, if possible, after the acute episode has been controlled. We use it similarly as an office procedure in patients who for one reason or another cannot be hospitalized or whose hospital stay has to be prematurely curtailed.

It is going but a step further to give the method a trial where possible, if only for a few days or weeks, in all cases of advanced emphysema. Here, of course, in many instances we get little or no relief. In others of these ambulant cases, the amount of relief is decidedly appreciable.

The institution of rest and indicated allergic management in all of our personal cases of emphysema makes it difficult to evaluate the amount of benefit that should be ascribed to the additional intravenous aminophyllin coincidentally used. Our impression, however, is that it is of decided assistance.

Intravenous aminophyllin correctly given is not a shocking procedure. We give it to our patients in the office, seated, not even lying down. Our dosage is 3¾ grains in 10 c. c. bulk. There is no bounding pulse, no appreciable rise in blood pressure, no face flushing or headaches, and extremely rarely any nausea. Our patients often at the end of the injection sit around for 15 minutes or so, and then depart, not having experienced the slightest discomfort. This statement is based on not a few but on many hundred injections of the material under such circumstances.

The secret of this success in the frequent intravenous administration of this agent lies in the slowness of the injection. Our custom is 10 or 15 minutes for the usual 10 c. c. dose. This slowness of injection eliminates almost invariably and completely all unpleasant by effects of the drug. Of course, a small dose of epinephrine hypodermically should be given 15 or 20 minutes later, if satisfactory relief has not been secured by the aminophyllin alone, and should be repeated one or more times as indicated, as this additional post-aminophyllin epinephrine is often necessary to induce cough and expectoration.

We have never seen any advantage in adding glucose to the intravenous aminophyllin and extremely rarely find necessary the 7 grain 20 c. c. dosage.

Where it is impractical to administer aminophyllin intravenously several times daily for days or weeks, a fair substitute is a single daily or every other day intravenous injection, and one or two daily additional administrations of the drug by rectum. We find 6 to 9 grain dosage in ½ ounce of warm water in adults very satisfactory, and 6 grains in children. An infant's rectal syringe makes self-administration easy and much more agreeable to the patient than the drug in larger dosage bulk or in the form of suppositories.

The barrel-shaped chest with widened intercostal spaces, and at times some posterior spinal kyphosis representing changes in the thoracic bony cage due to persistent excessive intrathoracic positive pressure, the generalized fine musical rales, and a patient constantly more or less dyspneic, with intercurrent attacks of frank asthma of all degrees of severity, represents the picture of advanced emphysema familiar to all of us.

The condition is, of course, an irreversible one as far as the involved bony anatomical

structures are concerned, and only too often also of the pulmonary parenchyma. Complete recovery is, of course, out of the question under the best of circumstances, and the immediate and ultimate prognosis is poor. Nevertheless, a great deal can at times be done through the measures here suggested to alleviate the sufferings of these unfortunates and to restore at least a few of them to a measure of economic recovery. In closing, we cannot emphasize too strongly the necessity for handling all advanced asthmatic emphysema on a strict specific allergy basis regardless of skin test results, and in our experience, aminophyllin used frequently has been a God-send to this type of case.

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THE WORLD HEALTH ORGANIZATION*

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INTRODUCTION

At the International Health Conference in New York on July 22, 1946, the constitution for the World Health Organization was signed by representatives of sixty-one nations.

This constitution was conceived in a spirit of practical idealism, was formulated in an atmosphere of hope which grew to be trust, and was signed with confidence and a determination to make the organization operative at once.

The World Health Organization proposes to raise the physical and mental health level, going far beyond the older concept of health as a mere absence of illness. It recognizes that attacking disease at its source is a better defense than setting up artificial barriers against epidemic spread. It aims for control and eventual eradication of communicable disease.

The constitution recognizes the natural channel for health improvement to be through national health services and therefore provides for strengthening them. It directs the methods for attack and authorizes research to discover new technics. It arranges for the coordination by the World Health Organization of all other agencies interested in, or capable of improving health. The representatives of the sixty-one nations were so confident of the great future of the World Health Organization and so eager for immediate service that a preparatory body, the Interim Commission, was formed and commenced its task even before the parent body, the International Health Conference, had adjourned.

HISTORY

This constitution has been in the making for nearly one hundred years. The basic concept of international health work has changed but three times since its inception in 1851. That year saw the first international health conference (Paris) where nations tried to secure agreement on methods of preventing the spread of pestilential diseases. No agreement was reached because the concept of control was empirical; ignorance of the modes of disease transmission permitted commercial and political considerations to dominate completely. Five more attempts had to be made during the ensuing forty years before the first valid agreement, relating to control of the pilgrimages, resulted from the Venice Conference of 1892. Eleven years later (Paris 1903) the first of the modern sanitary conventions was drawn up. By that time the modes of transmission and the invading organisms of many of the communicable diseases had been discovered. Quarantine entered its scientific phase, pointing the way toward safer commerce. Agreement at last became possible. Knowledge had replaced empiricism and politics.

The maritime spread of pestilential disease was impeded, without undue disturbance of commerce, through the application of the provisions of this Convention, but it is notable that the world-wide extension of some diseases, particularly plague, continued. Nor were sanitary conventions capable of preventing the overland spread of disease, the European typhus epidemic following World War I being a striking example. However, nations had learned some degree of international cooperation and the epidemic was controlled eventually through the operation of

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delousing stations on a broad front cutting across national frontiers.

In 1902, the Pan American Sanitary Organization was formed. This, though regional, was the first effective international health organization. It was followed next year (1903) by the Paris Convention. This incorporated an agreement among nations to notify each other of the existence of communicable disease. It also contained agreement that signatory nations would not exceed the maximum of quarantine requirements laid down in the convention. It also laid the foundation for the Office International d'Hygiene Publique which was established in Paris by the Rome Agreement of 1907.

Quarantine has remained the basis of the Paris office and today, the year of its absorption, it still confines itself principally to epidemiological intelligence of the five "treaty diseases," plague, smallpox, typhus, cholera, and yellow fever, and to supervision of the International Conventions, Maritime and Aerial. In 1924, the Pan American Sanitary Organization expanded its code to include six additional diseases and changed its concept of international health work to include direct assistance to governments (American) in the development of their national health services.

This change of view coincided with the creation of the Health Organization of the League of Nations in 1923. This organization, through its Health Section, not only concerned itself (in cooperation with the Paris Office) with improving epidemiological information services, but also entered the field of aid to and development of national health departments whenever invited by governments. These requests were increasing until the war stopped the active work of the League.

Now the concept of international health work has changed for the third time. We are entering a new era in the defense against disease. We have come to see more and more that in matters of health the world has lost its frontiers. Regional defense against disease is rapidly becoming as outmoded as neighborhood quarantine. With the new air speeds and the increasing travel we must regard the world as having but one cauldron of disease. Quarantine procedures applicable to rapid air transit cannot cope with the problem because detention periods must be measured in terms of transit time. Airplane travel has already forced us to place principal reliance upon "surveillance," a procedure whereby those suspected of contact with epidemic disease, are not detained at the point of entry but are allowed to proceed to their final destination with instructions to report any early illness to the local health officer. This is a compromise with realism which robs quarantine of its effectiveness. But of more significance, it is useless, in that many diseases are most contagious in their prodromal, non-symptomatic phase.

When the jet-plane is traveling in minutes instead of hours, and each nation has landing fields for planes from all parts of the world, then we will be recipients of those diseases of short incubation and infectible periods which inevitably will accompany international travel. Our Pacific coast is fearful of Japanese B. encephalitis, as the plane-time from its endemic source is rapidly approximating the infectible-period-time of the disease, and it is known that six species of California mosquitoes can transmit it.

The worst invasion suffered by the Western Hemisphere during the past twenty years was the establishment in northeastern Brazil of the African malaria vector, *Anopheles gambiae*. Before the insect was eradicated it had changed a mild form of malaria, infecting not over two per cent of the population, into a deadly epidemic costing thousands of lives and infecting practically 100 per cent of the population. During the war, *Anopheles gambiae* from Central Africa caused an epidemic of malaria in Egypt.

After the 1905 yellow fever epidemic in New Orleans, the South American countries and the United States worked together and were able to eradicate yellow fever from the Caribbean and gulf ports.

However, for many years epidemiologists have feared the introduction of yellow fever into India, as that country has 400 million susceptible people, a potential animal reservoir in the sacred monkey and already has prolific breeding of the yellow fever mosquito carrier, *Aedes aegypti*. India's perfect protection has been her surrounding waters. Planes are nullifying that protection so man must take up the security job,

lest India become the greatest focus for yellow fever dissemination the world has ever seen. Such a possibility can be avoided by eradicating the foci of the disease in Africa and South America.

It was demonstrated during the war that typhus can be eradicated. A new method of protection against the spread of this disease was developed when DDT became available. Through the use of this powder, it was possible to attack the disease at its source and to prevent epidemics. It permitted quick control of typhus in Naples in 1943-1944, and furnished the first example of halting a typhus epidemic in mid-flight.

The possibilities of DDT used against the insect carriers of malaria, yellow fever, typhus, leishmaniasis and other diseases are limitless. DDT in conjunction with other known methods of control could eradicate these diseases.

In the United States during the war, the malaria rate among our troops was kept down to a fraction of one per cent. But more than half a million servicemen contracted the disease overseas. In this country we have a very complete program of malaria control, which, if maintained for five or six years more, should eradicate the disease. In other countries where the disease is measured in mortality rates rather than in disability statistics, as here, such a comprehensive plan could become part of a world health program.

These are but a few examples that indicate that a nation's health safety in the future lies outside its own national boundaries and even outside its own hemisphere. America's principal danger is not from the Western Hemisphere, but from the Eastern Hemisphere. Attack against diseases there, as elsewhere, must be carried to the point of virtual eradication if this nation is to be fully protected. A new responsibility has been forced upon each country which none can discharge alone or in isolated groups. National health protection now demands world-wide concerted action. In recognition of this, the United Nations Conference for International Organization at San Francisco under the leadership of Brazil, placed "health" in the appropriate sections of the Charter of the United Nations.

The Conference realized the need for solution of health and other social problems. It provided in the United Nations Charter that members pledge themselves to take joint and separate action to this end, but not through operating functions within its own structure. Instead, the Charter (Article 57) places a health organization in the category of "specialized agencies" which are formed by intergovernmental agreement; which agencies shall be brought into relationship with the United Nations by special agreement (Article 63) with each of them. This charter also provides (Article 59) that the United Nations shall initiate negotiations among the States for the creation of such new specialized agencies as may be required.

At this same meeting, China and Brazil introduced a Declaration pointing out the urgent need for an international conference to form a single international health organization and stating their intention of seeking support from other nations. This was enthusiastically received by all. Thereupon, Brazil and China commenced negotiations with France, the Union of Socialist Soviet Republics, the United Kingdom, and the United States with a view to the early convening of the needed conference.

Prior to, as well as during this period, the Department of State and the U. S. Public Health Service had been preparing proposals for a draft constitution of the projected international health organization. These were amended by an Advisory Health Group of national health and civic leaders brought together by the Department of State in October, 1945. This group adopted a resolution strongly urging quick action to establish the organization. In December, 1945, the United State Senate unanimously passed a senate joint resolution requesting the President of the United States to urge upon the United Nations early action in convening a conference for the purpose.

As a result of such general support, the Economic and Social Council of the United Nations adopted a resolution on February 15, 1946, which named experts from sixteen nations as a technical preparatory committee and set the date of the International Health Conference as not later than June, 1946.

At the meeting of the Technical Preparatory Committee in Paris, March and April, 1946, four experts submitted documents which were found to be in essential agreement. That submitted by

Dr. Thomas Parran, the United States expert, was in the greatest detail, and was chosen as the Committee's basis for discussion. The report of the preparatory committee showed acceptance of the principles laid down in these documents, expanded them in some detail, made a number of additions, analyzed the debate of moot points and left their solution to the Conference. At the International Health Conference in New York, June 19-July 22, 1946, the majority of the provisions of the preparatory committee's report, after clarification and further expansion, were adopted.

It can be readily understood that during that conference some questions arose which impinged upon the prejudice of people. It is notable that these opinions were not permitted to interfere with the clear process of logic. The method by which these results were achieved is worthy of attention. The basic document was introduced at a plenary session where the various chapters and articles were sorted and referred to committees of the whole. Of these, five were working committees consisting of:

(1) Scope and functions

(2) Administration and finance

(3) Legal

(4) Relationship with the United Nations and other organizations

(5) Regional arrangements

Those articles which were non-controversial were quickly adopted by the committees. The more difficult questions were submitted to subcommittees, and in one case, an entire section was submitted to a harmonizing committee. The results were rerouted in reverse order, from the harmonizing committee to the subcommittee, to its drafting committee, to the committee of the whole, and finally to a plenary session. The over-all drafting committee of the plenary session made such changes as were necessary to bring all articles into the same style. After being studied, each article was separately read, redebated, occasionally rewritten at a plenary session, and adopted. Finally the entire constitution was adopted by the conference as a whole.

One other check was introduced, that of special action by the general or steering committee. This committee was composed of the president, the five vice presidents, the five chairmen of the working committees, and three members-at-large. This secured a high degree of competence as well as full geographical representation. When it appeared to the general committee that any special committee had permitted some section of the constitution to be affected by prejudice, it drafted a suitable compromise which it submitted to the proper committee of the whole or even to a plenary session, where it was reconsidered and final agreement reached.

The International Health Conference was composed of delegates from all fifty-one of the United Nations. Observers were invited from sixteen non-member states, of which only three small nations failed to send representatives. Observers were present from the allied control authorities for the enemy states, and from the principal international organizations interested in health.

Of the 113 official delegates, 103 were individuals specifically trained in public health. Eighty-five represented national health departments of the member countries of the United Nations. The delegations of 31 of the 51 United Nations were headed by ministers of health or chiefs of national health services or their deputies. Although this gave a predominantly public health cast to the debates, practicing physicians and teachers of medicine among the delegations were in sufficient force to assure representation of these fields.

ANALYSIS OF CONSTITUTION

The Constitution adopts as its first principle that "Health is a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity," and that it is fundamental to the attainment of peace and security. It realizes that improvements in one nation are advantageous to everyone and that uncontrolled disease in a single nation is a hazard to all others. It emphasizes the necessity for broad public health education and the need of the active participation of the individual, stressing his right to the enjoyment of the highest attainable standard of health irrespective of race, religion, political belief, economic or social condition. Of basic importance is the mental and physical development of the child. The extension of the benefits of medical, psychological

and related knowledge is essential. Finally, governments have a responsibility for the health of nations which can be met only by the provision of adequate health and social measures.

To assist governments in reaching the objectives indicated in these principles, twenty-two functions are assigned to the organization. Recognizing that these objectives can most quickly and most surely be reached through national health services, the principal function is to assist governments, upon request, in strengthening their health services. Other duties are to promote better nutrition and environmental sanitation, to foster mental hygiene, to improve maternal and child health, and to stimulate the work of eradicating disease.

For these purposes, the organization will act as the directing and coordinating authority of international health work and will establish working relations with the United Nations and all other necessary agencies. Fortunately there is special provision that it may establish direct communication with national health services. The organization is specifically empowered to carry on research in the field of health, and to promote improved standards of teaching. One important function is to assist in developing public health education, and to study administrative as well as social technics not only in public health, but also in medical care, both from a preventive and curative point of view. The organization is to develop, establish, and promote international standards with respect to food, biological, pharmaceutical and similar products moving in international trade. It is also given the tasks of collecting and disseminating statistics and epidemiological information; of calling conventions; of giving technical assistance to special groups; and of performing actual health relief services in time of emergency.

The structure of the organization has been made as simple as possible. The legislative body is the World Health Assembly meeting annually; the administrative authority is vested in an executive board meeting semi-annually; and the continuing administrative activities will be carried out by the Secretariat headed by a Director General.

The assembly is composed of delegates representing the Nation members of the World Health Organization. No representation shall be by more than three delegates from any one member. The constitution indicates the desirability of choosing the delegates on a basis of technical competence and preferably from national health administrations.

Realizing the great advantage to nations in receiving the stimulation inevitable from a meeting of the health assembly, the constitution contemplates that the annual meetings shall not take place in the same city but that each assembly shall select the country or region for the next meeting. It is hoped that within a few years the principal regions of the world will have had the benefit of local meetings of the assembly.

The assembly determines the policies of the organization, chooses the executive board, and appoints the director general. It has ten other functions, the principal ones being to supervise the financial policies and approve the budget; to consider all recommendations made by the the United Nations; to bring to the attention of members matters with regard to health which the assembly considers appropriate; to invite representation from other organizations; and to promote as well as conduct research in the field of health. This research may be carried out not only through the use of the personnel of the organization but also through the establishment of its own institutions and by cooperation with other institutions.

Articles 19 and 20 are significant departures from prior practice. Heretofore, international sanitary conventions have required long slow work on the part of some interested nation in organizing a conference, followed by even slower acceptance of its acts on the part of other nations. The authority conferred by these articles changes this procedure. Under them the assembly acts as a conference and then adopts its own conventions (by a two-third majority) and each member agrees that within eighteen months thereafter it will accept or furnish reasons for failure or refusal. The advantage of this procedure is apparent because within the past few months three nations, when they decided that they would accept the 1946 protocol to the existing sanitary conventions, discovered that they had not, as yet, accepted the 1933 or even the 1924 conventions.

No previous international health organization has ever had conferred upon it the regulatory powers specified in Articles 21 and 22. Before this inclusion, significant discoveries such as the protective innoculation against yellow fever or typhus could not be incorporated into sanitary conventions until they had been formally ratified by governments. Article 21 gives the assembly authority to adopt this type of regulation, and also to make regulations on nomenclature of disease, causes of death, public health practice, and to set standards of safety, purity, and potency of biological products and drugs moving in international commerce. These regulations may also apply to advertising and labeling of such products. All Member Nations accept these regulations after due notice has been given, except such members as notify rejection within the period stated in the notice. These regulations, therefore, come into force unless active steps are taken to nullify them. This important point was noted in discussions before the Economic and Social Council of the United Nations when it was emphasized that it avoids the difficulties consequent upon legislative inertia and permits acceptance through silence.

Finally, the Assembly selects each year one-third of the countries who may name members to the executive board. This board has eighteen members who should be well qualified in the field of health and who may bring with them alternates and advisers. It meets twice each year. It prepares the programs of work for Assembly approval; prepares its agenda; advises it on conventions, agreements, and proposals; acts as the executive body in giving effect to the decisions and policies of the Health Assembly; and nominates the director general to the assembly.

The secretariat, headed by the director general, has authority under Article 33 and upon governmental agreement, to arrange for direct access to national health services, various governmental departments, and to national and international health organizations, including non-governmental ones.

The constitution does not presuppose that the organization will become one large central body trying to reach all portions of the globe. Decentralization is provided through regional committees drawn from geographical areas to be separately defined by the Assembly, with regional offices under their supervision. These committees and offices are integral parts of the organization and there is to be but one in each area. These offices not only act for the parent body but also may carry on special work of a regional nature if such work is separately financed by the members of the region.

In developing this section of the constitution, specific consideration was given to the Pan American Sanitary Bureau as well as other regional intergovernmental health organizations already in existence. The Bureau through the past forty-four years has played such a significant part in the health progress of the American Republics that none desired to destroy it or see it lose its identity. Realizing that regional isolationism in health is no longer effective, and desiring to expand the scope of the Bureau, and also utilize its strength for the benefit of all, a special article (No. 54) was unanimously adopted providing for its integration in due course with the World Health Organization. Under this authority, an integrating agreement may be drawn so that the Bureau may serve as a regional office without interruption of its work.

Membership in the organization is open to all states; to those comprising the United Nations, by simple acceptance of its constitution; to observer nations, if acceptance is prior to the first health assembly meeting. Any nation may join upon application and majority vote of the Assembly. Associate membership is open to all territories or groups of territories not responsible for their international relations, upon application of the authority responsible for them. But it is stipulated that their representatives should be chosen from the native population.

Subject to any agreement between the organization and the United Nations, the health assembly shall review and approve the budget estimates and shall apportion the expenses among the members in accordance with a scale to be fixed by the Health Assembly.

Approval of this constitution at New York was unanimous. So enthusiastic was the support that it is expected the first Assembly of the World Health Organization will meet not later than the autumn of 1947. Although the organization, through its interim commission, is already

an active agency, the constitution does not come into force until accepted by twenty-six members of the United Nations. Canada, China, New Zealand, and the United Kingdom have already become parties to it. The Department of State intends to present this constitution to the Congress when it meets in January 1947 and to urge its immediate acceptance.

LABORATORY CONTROLS IN RELATION TO PENICILLIN AND STREPTOMYCIN THERAPY*

By JOHN A. KOLMER, M.D.†
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Various laboratory examinations are of great value and importance in relation to penicillin and streptomycin therapy. This is true not only in regard to the production of these compounds before being released for administration, but also in relation to their antimicrobial activities, accurate bacteriologic examinations as a basis for their employment in treatment, susceptibility tests in relation to their choice in treatment and dosage, the use of inactivators in blood cultures to avoid falsely negative results and assays of the serum, spinal fluid and other body fluids in relation to their dosage and methods of administration.

LABORATORY CONTROLS IN RELATION TO PRODUCTION

After drying, penicillin is assayed by the Oxford cup method and its potency expressed in terms of units. Each lot is also tested for (a) sterility in the presence of an inactivator like clarase and (b) for pyrogenic or fever producing impurities by administration to rabbits before being released for administration.

After drying, streptomycin is also assayed for potency by the Oxford cup method which is expressed in terms of weight equivalent to streptomycin base instead of units. Each lot is also tested for (a) sterility in the presence of an inactivator like hydroxylamine hydrochloride, (b) moisture content, (c) pyrogenic substances, (d) the presence of histamine-like impurities, (e) streptothricin and (f) the clarity of solutions. It is particularly important that it should not contain an excess of histamine-like impurities which are largely responsible for some of the toxic reactions.

UNITS OF PENICILLIN AND STREPTOMYCIN

The Oxford unit of penicillin is the smallest amount dissolved in 50 c. c. of meat extract broth capable of completely inhibiting the growth of a susceptible strain of *Staphylococcus aureus* like the H (Heatley) strain. An International Unit has been proposed, however, which has been defined as the specific penicillin activity contained in 0.6 microgram of the International Penicillin Standard. This unit is approximately equivalent to the Oxford unit.

The original unit of streptomycin was the smallest amount inhibiting the growth of a suitable culture of *Esch. coli* in 1 c. c. of broth medium. The official unit adopted by the Division of Medical Sciences of the National Research Council, however, is the smallest amount equal to one microgram (0.001 mg.) of streptomycin base which is equivalent to one original unit. On this basis the dosage of streptomycin is now expressed in terms of weight instead of units in which 0.010 gram equals 10,000 units, 0.1 gram, 100,000 units, 0.5 gram, 500,000 units and 1.0 gram, 1,000,000 units. The compound in the form of its sulfate or hydrochloride salts is now dispensed in containers carrying 1.0 gram.

In assays of the blood, spinal fluid, urine and other body fluids of patients under treatment the amount per c. c. should be expressed in terms of micrograms in which one microgram is equivalent to one unit or 0.001 mg.

ANTIMICROBIAL ACTIVITY OF PENICILLIN

As is now well known, penicillin is highly active against certain gram-positive organisms like staphylococci, beta hemolytic streptococci, pneumococci, *B. anthracis*, *C. diphtheriae* and the clostridia of tetanus and gangrene but is inactive against tubercle bacilli. It is likewise highly active against gonococci, meningococci, *T. pallidum* and *T. pertenue* but less active against the

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spirochetes of the relapsing fevers and the leptospira of infectious jaundice.

Penicillin is also moderately active against *Actinomyces bovis* and the viruses of psittacosis and ornithosis but inactive against other pathogenic fungi and viruses. It is relatively inactive against the gram-negative bacilli, like most strains of *H. influenzae, Kleb. pneumoniae, Ps. pyocyanea, Past. tularensis, Esch. coli* and other bacilli of the colon-typhoid-dysentery group as well as being inactive against the rickettsiae and pathogenic protozoa.

ANTIMICROBIAL ACTIVITY OF STREPTOMYCIN

Fortunately streptomycin is highly to moderately effective against various gram-negative bacilli while being but slightly effective against others, as shown in *Table 1*. It is also but slightly effective against gram-negative diplococci like the gonococcus and meningococcus but highly effective against certain gram-positive bacilli like *B. anthracis, B. subtilis* and tubercle bacilli. It is also active to some extent against other gram-positive organisms like staphylococci, streptococci and pneumococci, sometimes even more so than penicillin, but relatively inactive against the clostridia, *T. pallidum*, the rickettsiae, viruses, yeasts and molds and pathogenic protozoa.

ANTIMICROBIAL ACTIVITY OF STREPTOMYCIN

Highly effective	Moderately effective	Slightly effective	Relatively ineffective
Past. tularensis*	Ps. pyocyanea*	B. mallei*	Cl. welchii†
Kleb. pneumoniae*	The Salmonella*	V. cholerae*	Cl. septicum†
H. influenzae*	Br. abortus*	Gonococci*	Cl. butyricum†
H. pertussis*	Br. melitensis*	Meningococci*	T. pallidum
Esch. coli*	Br. suis*	A. bovis†	Rickettsiae
Aerobacter aerogenes*	Eber. typhi*	Staphylococci†	Viruses
Proteus vulgaris*		Streptococci†	Yeasts and molds
Shig. dysenteriae*		Pneumococci†	Protozoa
B. anthracis†		C. diphtheriae†	
B. subtilis†			
Myco. tuberculosis†			

*Gram-negative; †Gram-positive.

Table 1

MECHANISM OF THE ANTIMICROBIAL ACTIVITIES OF PENICILLIN AND STREPTOMYCIN

The exact mechanism of the antimicrobial activities of these compounds, however, is still unknown at the present time. Both are most active against young proliferating bacterial cells and, consequently, are more effective in the treatment of acute than of chronic infections. In this respect their activity appears to depend upon interfering with cellular division which prevents the multiplication of bacterial cells, designated as genesistasis, with the frequent production of pleomorphic changes. Crippled organisms *in vivo* are then thought to be largely removed by phagocytosis and particularly by the cells of the lymphoid-reticulo-endothelial system.

VALUE OF ACCURATE BACTERIOLOGIC EXAMINATIONS IN RELATION TO PENICILLIN AND STREPTOMYCIN THERAPY

Therefore, in view of these spectra of the antimicrobial activities of penicillin and streptomycin it is always necessary or advisable to base penicillin and streptomycin therapy upon the results of accurate bacteriologic diagnosis whenever possible since their administration is indicated only in the treatment of diseases due to susceptible organisms. For example, streptomycin is the compound of choice in the treatment of diseases due to gram-negative bacilli and tubercle bacilli.

Accurate bacteriologic examinations are also indicated when mixed infections are suspected or known to be present as is so likely to be the case in lung abscesses, empyemata, bronchiectasis, chronic sinusitis, chronic infections of wounds and burns, and so on, since mixed treatment with penicillin and streptomycin may be indicated.

In many instances, however, the physician or surgeon is justified in making a presumptive diagnosis on the basis of the signs and symptoms presented and proceeding with penicillin or streptomycin therapy without further delay. Indeed, in many of the acute severe infections like the septicemias, suppurative meningitides, pneumonias, acute osteomyelitis, and so on, treatment should be instituted as soon as pos-

sible as it can be stopped, with no harm done, if bacteriologic examinations subsequently show that the case is unsuitable for penicillin or streptomycin therapy.

NATURAL RESISTANCE OF BACTERIA TO PENICILLIN AND STREPTOMYCIN

As is now well known, different cultures or species of any bacterium susceptible to penicillin may possess a higher natural resistance to the compound *in vitro* and *in vivo* than is generally observed. Thus, streptococci of the viridans type, like *Str. salivarius* and *Str. fecalis*, as well as anerobic hemolytic streptococci, are much more resistant than aerobic hemolytic streptococci of group A; staphylococci and pneumococci also vary a good deal in susceptibility.

The same is true of streptomycin. Thus, some strains or species of *Esch. coli*, *Ps. pyocyanea*, *Kleb. pneumoniae*, staphylococci, etc., may be much more resistant or less susceptible than usual.

This has an important bearing upon the dosage of these compounds and may be responsible for therapeutic failures. As previously stated, however, streptococci, staphylococci and other gram-positive organisms may be found more susceptible to streptomycin than to penicillin *in vitro*, with the suggestion that streptomycin may be the compound of choice in treatment.

ACQUIRED RESISTANCE OF BACTERIA TO PENICILLIN AND STREPTOMYCIN

Furthermore and very importantly, bacteria highly susceptible to penicillin and streptomycin may acquire resistance to the compounds during treatment which also has an important bearing upon administration. In this connection bacteria acquire resistance to streptomycin much more rapidly and frequently than to penicillin. Consequently, the compounds should not be used indiscriminately in the treatment of disease.

Acquired resistance, however, may not actually occur but only represent the survival of naturally resistant variants. In other words, the compounds may rapidly eliminate highly susceptible organisms while leaving behind more resistant variants or "persisters" which are thought to be organisms of acquired resistance.

Fortunately, gonococci, pneumococci, streptococci, staphylococci and other penicillin-susceptible organisms possessing a high natural or acquired resistance to the sulfonamide compounds are highly susceptible to penicillin both *in vitro* and *in vivo* since acquired resistance is highly specific. Consequently, cases resistant to sulfonamide therapy are amenable to treatment with the mold compound. Likewise, streptococci, staphylococci and pneumococci with acquired resistance to penicillin may be susceptible to streptomycin and the reverse.

IMPORTANCE OF SUSCEPTIBILITY TESTS IN RELATION TO PENICILLIN AND STREPTOMYCIN THERAPY

Under the conditions, laboratories are frequently requested to determine the susceptibility of bacteria to penicillin and streptomycin *in vitro* as a clinical guide to dosage and administration. Infections due to strains with high natural or acquired resistance require larger dosage and more prolonged treatment than highly susceptible strains.

The susceptibility tests of Kolmer and of Levine and his associates are simple and satisfactory. In this connection, however, the paper disc method of Bondi and his associates, as worked out in my laboratory, has proven particularly satisfactory for making routine bacteriologic diagnosis and determining susceptibility to both penicillin and streptomycin simultaneously within 24 to 48 hours. The details of this method are as follows:

(1) Streak the material being examined on each of two veal infusion blood agar plates by (a) drawing the swab or a loopful of material once across one side of the plate; (b) with a sterilized loop streak one-quarter of the surface parallel to the first streak; (c) after flaming the loop the plate is successively turned at right angles and streaked in the same manner, being careful to touch the previous streak until the entire surface has been covered.

(2) Prepare discs of Whatman No. 2 filter paper, 6.5 mm. in diameter, with a cork borer or paper punch. Place the discs in a Petri dish and sterilize in a hot air oven.

(3) With an alcohol-flamed fine pointed forceps, dip a disc into a solution of penicillin in a test tube containing 15 units per c. c. and remove the excess of solution by placing the disc flat against the wall of the tube. Gently place the disc on the area of the primary inoculum on the left side of the plate. In a similar manner, on the right side of the plate, place a disc saturated with a solution of streptomycin containing 500 units per c. c. The discs should be at least 20 mm.

apart and on a line parallel to the line of streak so that the inoculum around both discs will be comparable. The solution of streptomycin may be used over a period of several weeks if stored in a refrigerator, but the solution of penicillin should be prepared weekly and kept in a refrigerator. Both solutions are best prepared with N/15 phosphate buffer (pH 6.0).

(4) Incubate one plate aerobically and the second plate anaerobically for about 24 hours when both are examined for colony identification and for the susceptibility of the predominant or pathogenic organisms to penicillin and streptomycin.

(5) Susceptibility is indicated by the absence of growth around each of the two discs, the larger the zone of inhibition the greater the susceptibility of the organism or organisms to penicillin and streptomycin respectively. The zones are usually well defined and their diameters readily measured.

(6) In the case of penicillin, zones more than 20 mm. in diameter indicate high susceptibility, 10 to 20 mm. moderate susceptibility, and less than 10 mm. resistance of the organisms. The zones of inhibition are practically identical in both the aerobic and anaerobic plates.

(7) In the case of streptomycin, zones greater than 15 mm. in diameter indicate high susceptibility, 10 to 15 mm. moderate susceptibility and less than 10 mm. resistance of the organisms. Since the activity of streptomycin is reduced under anaerobic conditions only, the aerobic plate should be used for determining susceptibility to this agent.

THE USE OF INACTIVATORS IN BLOOD CULTURES

When blood cultures are made in cases under penicillin therapy it is always advisable to add a substance to the broth medium capable of inactivating the compound in the blood in order to prevent falsely negative cultures due to inhibition of growth. Selected lots of clarase in dose of 0.01 gram per 100 c. c. of medium may be employed, but the addition of 5 to 10 units of penicillinase* per 100 c. c. is preferred. Cysteine hydrochloride may be bactericidal and should not be employed.

In blood cultures of cases under streptomycin therapy it is advisable to add 5 c. c. of a sterile solution of hydroxylamine hydrochloride, which has been adjusted to pH 6.0 with sodium hydroxide, to 100 c. c. of the medium for the inactivation of the compound.

ASSAYS OF THE BLOOD AND OTHER BODY FLUIDS FOR PENICILLIN

As is now well known, it is frequently necessary or advisable to determine the amount of penicillin in units per c. c. of serum, spinal fluid, urine or other body fluids at intervals during treatment in relation to the absorption, excretion and effective therapeutic levels of the compound. Otherwise, and when in doubt, dosage must be based upon clinical judgment and experience alone.

Effective concentrations in the serum should be within the limits of 0.02 to 2 or more units with a general average of about 0.15 units per c. c. All hospital and other medical laboratories should be prepared to conduct these assays because of their clinical value in relation to dosage and methods of administration.

In assays of serum *B. subtilis* may be employed as the challenging organism although some believe that it may introduce a source of error due to the presence of an anti-subtilis substance in human sera and especially of adults. Beta hemolytic streptococcus (strain C-203) may be employed but may also be subject to possible error due to the presence of a natural anti-streptococcus substance in some sera. *Staphylococcus aureus* (H or 209-P strains) is usually preferred although it may not be suitable if the sera contain less than 0.08 units per c. c. The Oxford cup, various serial dilution (Rammelkamp, Kolmer, Randall, etc.) or Fleming slide methods may be employed.

ASSAYS OF THE BLOOD AND OTHER BODY FLUIDS FOR STREPTOMYCIN

Assays of the serum, spinal fluid, urine and other body fluids for streptomycin are also advisable in relation to the absorption, excretion and effective therapeutic levels of the compound in the treatment of disease.

Effective concentrations in the serum probably vary from about 2 to 20 micrograms (units) per c. c. or higher according to the nature of the infection. In general terms, dosage should be such as to maintain a concentration in the blood four to eight times higher than is found necessary for bacteriostatic activity *in vitro*.

The cup method of Stebbins and Robinson, using the SM strain of *Staphylococcus aureus*, the serial dilution method of Price and his associates, using *B. circulans*, or the Fleming slide method, using *B. megatherium*, may be employed.

*Schering Corporation.

SUMMARY

(1) Various laboratory examinations are indispensable in relation to the testing of penicillin and streptomycin for the prophylaxis and treatment of disease.

(2) Accurate bacteriologic examinations are necessary or advisable whenever possible as a basis for the use of these antibiotic agents since they should be employed only in the treatment of diseases due to susceptible organisms.

(3) Susceptibility tests are frequently required for the detection of natural or acquired resistance of organisms to penicillin or streptomycin in relation to dosage and administration.

(4) Suitable inactivators of penicillin or streptomycin should be added to blood cultures of patients under treatment in order to avoid falsely negative results.

(5) Assays of the serum, spinal fluid, urine and other body fluids for penicillin or streptomycin are frequently necessary or advisable in relation to the dosage and administration of the compounds.

DISCUSSION (*Abstract*)

Dr. E. Sterling Nichol, Miami, Fla.—We are all in Dr. Kolmer's debt, not only for his coming to Miami as a guest of this Section, but for his past contributions in this field. Dr. Kolmer and his co-workers have been active in rapidly developing simple and accurate laboratory methods to determine the resistance, whether natural or acquired, of bacteria to penicillin and streptomycin. This procedure is the crux of his remarks today as far as clinical application goes, and every time a positive culture is obtained, regardless of its source, the degree of susceptibility to penicillin or streptomycin should be tested at the outset, though of course initial treatment with an antibiotic should not be withheld, as valuable time may be lost to the patient. Thus, one can find out whether penicillin should be continued, or streptomycin or sulfonamides should be resorted to, rather than wait on the response to therapy to tell the tale. Especially when a patient relapses a new penicillin or streptomycin sensitivity test should be made since the exposure of bacteria to sublethal doses permits the more resistant bacterial forms to thrive and multiply even if the more sensitive have been eliminated so that the total culture then shows increased resistance to the antibiotic, necessitating an increase in dosage.

I do not believe that the danger of inciting increased resistance to antibiotics by underdosage or improper timing of doses has been sufficiently stressed. In streptomycin therapy Keefer has recently emphasized that it takes 4 to 8 times a concentration of streptomycin in the blood that is necessary completely to inhibit the bacterial culture in the laboratory. Whether or not the cause of decrease in susceptibility of bacterial to antibiotics is due to a change in their growth requirement following administration of antibiotics or a survival of the fittest in the bacterial population, it makes little difference to us as clinicians or to the patient. The boost in dosage of penicillin or streptomycin is imperative regardless of the underlying causative mechanisms which intrigue our biological peers.

A shift in the species of the infecting organism sometimes occurs, though rarely, so this must be kept in mind when attributing failure of treatment to "persisters." Finland and associates found that in some urinary infections treated with streptomycin, failure was changed to success by simply alkalinizing the urine, thus enhancing the susceptibility of the infection to streptomycin *in vivo*.

Hunter has pointed out that the correlation between sensitivity of bacteria as demonstrated in the laboratory, and the results achieved in treatment, is not always perfect. In subacute bacterial endocarditis, Hunter noted refractoriness in some cases without embolic phenomena suggesting that the vegetations were dense, requiring greater concentrations of penicillin. In these cases, and when the valves are calcified, he advocates heroic doses of penicillin up to 20 million units daily, doses out of proportion to expectation based on the laboratory susceptibility tests. Loewe has had similar cases, controlled only by giving even larger amounts of penicillin.

Bowen recently mentioned a very simple procedure whereby adequate dosage of streptomycin could be determined by the use of one single drop of urine added to a small pinch of "gala" test powder. If the dosage is adequate, the powder will instantly have a black or brown discoloration. This color phenomenon he says parallels all complicated laboratory tests for adequate dosage. By accident this test was discovered since it was observed that streptomycin produced a sugar reduction-like reaction. I would like Dr. Kolmer to comment on this simple test.

TWO-YEAR FOLLOW-UP ON ONE QUARTER OF 1944 EPIDEMIC OF POLIOMYELITIS IN KENTUCKY*

By CHARLES F. WOOD, M.D.
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In 1944 Kentucky had its worst epidemic of infantile paralysis, 759 cases being reported. Approximately 25 per cent of these cases have recently been examined two years after onset.

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*Read in Section on Orthopedic and Traumatic Surgery, Southern Medical Association, Fortieth Annual Meeting, Miami, Florida, November 4-7, 1946.

*From the Department of Orthopedic Surgery, University of Louisville School of Medicine.

Data on their present condition correlated with their original involvement is given primarily to show the effects of a severe epidemic of polio. The cases are not selected ones, but should be representative of the epidemic as shown in *Table 1*. This series is based on all cases which could be followed which had been admitted to the Louisville General Hospital during the epidemic, plus additional cases at Kosair Crippled Children Hospital, and a few cases treated at home or seen later and treated as out-patients during their convalescence. Many cases also are included which had had little, if any, treatment, but which returned for the two year check-up study.

Lack of personnel and time forces us to classify and record our data on an empirical clinical basis. Admitting the defects of this method as compared to a study of periodic muscle examinations,[2] we feel that it does present a fairly accurate basis for indicating the over-all outcome of the disease in this particular epidemic. For this study the cases during the acute stage have been divided into three groups as follows:

(1) Mild: pain and spasm, but no recorded weakness or paralysis.

(2) Moderate: muscle weakness, but no major paralysis.

(3) Severe: paralysis of major muscle groups or entire extremities. Some cases are included here like those described by Gill[3] and Ransohoff[4] where extreme pain and spasm prevented accurate muscle testing. When the pain subsided, flaccid paralysis was evident.

The results at two years are classified as:

(1) Normal.

(2) Good: cases having slight residual tightness or weakness, but no restriction of activity or disability.

(3) Fair: these patients have definite impairment of function, mostly in a single extremity. They include weak arms or hands, very slight scoliosis, weak lower extremities, and some cases with foot deformities which may require surgical correction.

(4) Poor: this group includes all cases with major flaccid paralysis or marked loss of function due to weakness or deformity.

Using these standards our results are shown in *Table 2*.

It is seen that while 26.6 per cent of the cases have recovered, the large majority of them were mild originally, and that only 15 cases with definite paralysis have recovered to the point that they are classified as good or normal. In all of them the paralysis was short, and there was beginning return in function by the end of six weeks. It is discouraging to note that 14 mild cases have not recovered entirely. One is classi-

CORRELATION OF ENTIRE EPIDEMIC AND CASES REPORTED

	Entire epidemic	Louisville General Hospital and Polio Clinic	
		Original series	Followed two years
Total cases	759	254	192
Hospitalized	528	228	167
Died	43	14	
Mortality rate	5.6%	5.5%	
Local (Jefferson County)	264	136	108
State	495	118	84
White	726(a)	231	177
Colored	27(a)	23	15
Age			
Under 5 years	296(b)	98	81
5 to 15 years	329(b)	115	90
Over 15 years	115(b)	41	21

(a)—19 age unknown
(b)—6 race unknown

Table 1

RESULTS AFTER TWO YEARS COMPARED TO ORIGINAL INVOLVEMENT

Original involvement		Per cent	Result at two years			
			Normal	Good	Fair	Poor
Mild (Lost 11)	36	18.7	22	13	1	0
Moderate (Lost 19)	46	23.9	23	14	8	1
Severe (Lost 32*)	110	57.3	6	9	22	73
Totals. Followed	192		51	36	31	74
Lost	62*					
	254*	Recovery, per cent	26.6	18.7	16.2	38.5

*Includes 14 deaths.

Table 2

fied fair because of a very slight scoliosis noted on two-year examination. He had not been seen since his acute stage, his parents assuming that he was completely well. Six have mild cavus feet while the other seven have only residual tightness of back or hamstrings, slight weakness of abdominals, or isolated extremity muscle weakness.

Included in groups three and four are patients with all types and degrees of disability, as will be shown later. Approximately half of these cases have only weakness, isolated muscle paralysis, or relatively minor, easily correctable deformity. Many of them are still improving under treatment, and may ultimately show satisfactory recovery. Even under the most lenient conditions, however, 25 per cent of followed cases have severe major disability.

The recovery of involved extremities is shown in *Table 3*. Here again most of the paralyzed muscles which have recovered showed some early return of function. On the other hand, some muscles have first shown return as long as eighteen months after onset, and many of the weaker ones continue to show gradual, but steady improvement.

Consideration of the various disabilities and residua of the cases classed as poor or fair inevitably raises the question of the treatment used. Since 1942 we had been using the so-called Kenny method on our few sporadic cases at Kosair Crippled Children Hospital, because it was felt that "the method is productive of the greatest comfort and quickest relief of muscle soreness and stiffness. It possibly minimizes the deformity, but does not prevent paralysis, nor is it a cure for the disease."[5]

RECOVERY IN INVOLVED EXTREMITIES IN 156 PATIENTS WHO HAD WEAKNESS OR PARALYSIS DURING ACUTE STAGE

Original involvement		Condition at end of two years: Normal	Slightly weak	Fair	Poor
Weakness, upper extremity	30	27	2	1	0
Weakness, lower extremity	106	67	18	14	7
Total extremities weak	136	94	20	15	7
Paralysis, upper extremity	53	8	10	15	20
Paralysis, lower extremity	129	20	16	34	59
Total extremities paralyzed	182	28	26	49	79
Total upper extremities involved	83	35	12	16	20
Total lower extremities involved	235	87	34	48	66

Table 3

We had three Kenny-trained technicians at the onset of the epidemic, so it was decided to continue the treatment. Every effort was made to carry out the treatment properly, but our facilities were so completely overwhelmed that this was impossible. Due to the war, we had no orthopedic resident staff at either of the two hospitals, and only one part-time visiting orthopedist at the Louisville General Hospital. Here the patients were admitted and cared for on the pediatric service during the epidemic. For over three months, the patient-technician ratio was never better than 30 to one, and for about two weeks it was over 50 to one. Nurses and lay help were correspondingly lacking. Consequently many of the patients received woefully inadequate treatment and supervision during their acute and early convalescent stages. In addition many have been extremely lax about carrying on any treatment in the later stages, and in reporting for regular periodic check-ups. For these reasons and the fact that cases are included which were not seen until late, this series cannot be used to judge the merits of the treatment. Emphasizing this point, we report the following:

One "basket-case" who sleeps in a respirator. All extremity and trunk muscles are zero. She breathes during the day principally with one sterno-mastoid.

Six cases unable to stand alone because of flail lower extremities and severe trunk involvement.

Five cases with bilateral flail lower extremities wearing braces and using crutches or sticks.

Six cases with both lower extremities very poor who walk with sticks or crutches.

Thirteen cases wearing single long braces because of practically flail single lower extremity.

Seven cases with severe trunk and multiple extremity weakness or paralysis.

One case with bilateral practically flail upper extremities.

Seven cases with single flail upper extremities. All of the above as well as other cases showing weakness or partial paralysis can rightly be as-

cribed to permanent damage to the anterior horn cells by the virus. However, in our groups of fair and poor cases, we have deformities of practically all types including the following:

One dislocated hip.

Fifteen flexion abduction contractures of the hip in 11 cases.

Forty-five foot deformities, fixed or due to muscle imbalance in 34 cases:

Nine valgus.

Three varus.

Five equino-valgus.

Seven equin-varus.

Seven drop-foot, due to weakness or paralysis, no deformity.

Fourteen equinus, with fixed contractures of tendo Achilles.

Nine flexion contractures of fingers, mostly multiple, in seven cases.

How many of these deformities are due to improper or inadequate treatment, I am not able to say. I am sure some of them could have been prevented, but others, especially those which are not fixed, are due primarily again to permanent muscle paralysis. There are, however, two types of deformity we have seen in treated cases in this series which I think should be emphasized. Thirty-three patients have posterior over-relaxation in one or both lower extremities resulting in hyper-flexion of hips, genu recurvatum, or calcaneus feet. The breakdown of individual regions is as follows:

Hips 22.

Knees 15.

Ankles 16.

Calcaneo-valgus 5.

The other significant deformity is also a relaxation one in the upper extremity. Out of 20 poor upper extremities, six shoulders are so relaxed that the head of the humerus drops almost out of the glenoid when the patient is upright. Apparently there is complete paralysis of the deltoid and all scapulo-humeral muscles, and marked relaxation of the shoulder joint capsule. These conditions are very disabling, unsightly, and have been extremely recalcitrant to treatment, especially the hips and the shoulders. We have all seen them as complications of polio, but in this series I have been impressed by their number. Certainly if they represent what Miss Kenny's advocates have in mind in the statement,

"Most of them (joints) are more limber than they were before the onset of the disease,"[6] it is a very undesirable result of treatment.

Twenty-one cases of scoliosis of all degrees have been noted in our two year check-ups. Three are extremely slight, and at least four others are definitely improving. As was mentioned, one mild case was picked up in a boy who had not been seen since his acute stage, and of the other 20, 15 were noted before the end of the first year. A more complete study of trunk involvement in this series reveals several interesting facts.

Forty-eight cases had recorded scoliosis during the first year, one case being noted on admission, and six others developing within the first three months. In addition 39 other cases had back involvement which could precede or cause scoliosis, namely: pull to one side on flexion, due to residual tightness, or asymmetry of spine and pelvis, due to muscle imbalance. The outcome of these cases is shown in *Table 4*.

To me this is encouraging, and I hope indicates that we may be preventing development of late scoliosis, at least in some of these cases. I need not add that all of these cases will be followed as carefully as possible to see what their ultimate outcome will be.

While I have emphasized the fact that the figures presented cannot be used to judge the value

OUTCOME OF CASES SHOWING SCOLIOSIS OR CONDITIONS PRECEDING SCOLIOSIS DURING FIRST YEAR

		Latest known result				
Earliest recorded involvement	Normal	Weak	Pull on Flexion	Asymmetry	Scoliosis
Scoliosis ——48					
Followed 2 years ——40	13	3	3	7	14
Not followed 2 years——8	4	1			3
Asymmetry back and pelvic tilt ——13	9	0	2	1	1
(All followed 2 years) Lateral pull on flexion——26					
Followed 2 years ——22	20		1	1	
Not followed 2 years——4	3		1		

Table 4

of the Kenny treatment, I feel that I have observed enough of these patients long enough to have reached definite conclusions on the subject:

First and foremost, it is not a treatment for the disease. (If any further proof is needed for this statement, I cite the fact that 45 patients got worse under treatment, ten developed complete paralysis in extremities not involved on admission, 27 had spread or increase in degree of paralytic involvement, and eight had acute flare-ups of pain and spasm, three during the third week of hospitalization.)

The treatment should not be used routinely in a large epidemic. In many cases it is unnecessary, and unless the patient-technician ratio is kept below 20 to one, it cannot be carried out adequately.

If not properly supervised, and without utmost cooperation of the patient and his parents, the treatment is dangerous. Contractures and deformities do occur, often early, which cannot be corrected or overcome.

Properly supervised, properly carried out, and with the proper cooperation of patients and parents, I feel that the Kenny method of physiotherapy is good physiotherapy. From observation of these cases under treatment, it seems that the patients are taught to use what muscle power they have to the best functional advantage. They apparently are able to get around better with fewer artificial appliances, without increasing deformity. I think it is of extreme importance to teach them proper balance, proper weight-shifting in walking, and the proper walking pattern, which is done carefully and meticulously by our technicians. Certainly it seems to me that, as muscles recover, their function is better, and their rhythm smoother, than with other methods.

I am also very favorably impressed by the apparent improvement in a large number of weak, tight, or asymmetrical backs. If, by careful stretching of areas of residual tightness, and by exercises to balance unequal trunk musculature, any scoliosis can be improved or prevented, a definite contribution has been made. How much of the good is actual Sister Kenny method, and how much is due to the individual technician, I do not know.

While waiting for the epidemiologists to discover adequate specific therapy to prevent or treat the disease in its early stages, we will continue to use what we consider good of the Sister Kenny method in attempting to treat its effects.

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DISCUSSION (*Abstract*)

Dr. Raymond E. Lenhard, Baltimore, Md.—In Maryland we studied the 1941 epidemic of 287 patients two years later, and our results were published in January, 1943.

During this past summer we reviewed the results of the 1944 epidemic in Maryland, comprising 370 cases, the total number for the epidemic being 494 cases with 18 deaths, making a mortality percentage of 3.6. There were 8 per cent excellent recoveries or very good recoveries in this study; 12 per cent of them had moderate residual symptoms; 6 per cent, marked residual; 2 per cent, complete residual paralysis. These are almost exactly the same percentage figures as in the 1941 epidemic, which leads to an impression that if epidemics are carefully studied they probably do not vary much in severity.

There were 228 males and 142 females in the series of cases contacted for examination. The cases were subdivided into five-year periods and it was found that the greatest incidence was in the years between five and nine. There were fifty-six adults or persons above twenty years of age; and while this was not a great number and therefore the incidence was less, their percentage of recovery was also very much less.

It seems that the probability for recovery in poliomyelitis is good. It is about the probable 20 per cent who do not make a good recovery that most of the discussion would come as to the value of treatment. It was our impression in going over Dr. Wood's paper that he had a little higher percentage of deformities and flail extremities than we had, but one would have to know in a little more detail the exact definition of a deformity or of a flail extremity.

We were able to see many cases which had had Kenny or a modified Kenny therapy. It was also our impres-

sion with some figures to support it, that those treated by this method had a higher percentage of deformity than those treated with protective care of the weak muscles during the period of recovery.

Dr. Wood (closing).—By "flail extremity" I mean one which has practically no useful muscle function in it. Practically all of the muscles in the so-called flail extremities would test zero.

The deformity is varied, including all types and degrees of limitation or restruction of motion with or without fixation.

THE EFFECT OF PARA-AMINOBENZOIC ACID IN RICKETTSIAL DISEASES*

By NICHOLAS A. TIERNEY, M.D.
Miami, Florida

The rickettsial diseases are acute infectious diseases caused by organisms which grow and multiply within the cells. In many ways they are similar to the viruses and until recently there has been no cure for them. To mention the commoner types of rickettsial diseases we have Rocky Mountain spotted fever and murine typhus, both of which occur in this country. There is epidemic or louse-borne typhus which has been the great scourge of the old world. In the second world war we ran into a rickettsial disease which was a great military problem. As medical students most of us remember it, possibly because of its odd name. I am referring to tsutsugamushi disease or scrub typhus. Then there are various tick bite fevers, trench fever, and also Q fever.

There had been no practical specific treatment for any of these diseases. For Rocky Mountain spotted fever and epidemic typhus, specific antisera were developed but these in order to have any appreciable effect had to be administered within the first three days of the disease. To any one who knows rickettsial diseases it is obvious that the diagnosis can rarely be made as early as that. With few exceptions, unless one is very familiar with these diseases, they are not even thought of before the rash develops.

A chemical agent was discovered to be antirickettsial approximately four years ago. It is para-aminobenzoic acid, which for the sake of brevity we shall call PABA. Snyder, Maier and Anderson[1] had tested numerous agents in mice infected with murine typhus. They noticed that sulfonamides seemed to make the disease worse, and this prompted them to try PABA, for PABA neutralized the effects of sulfonamides in culture media. When PABA was tried, 80 per cent of the mice infected with murine typhus survived while only 20 per cent of the control mice recovered.

Yeomans, Snyder and associates[2] of the U. S. Typhus Commission tried it out on Egyptian patients with louse-borne typhus. They treated 20 patients and compared them with 44 controls and found that it had a fairly marked effect in decreasing both the severity of the disease and the case fatality rate. The PABA was administered in these cases not later than the seventh day of the disease.

I worked on this subject in Egypt and then later went to the Far East to give it a trial on scrub typhus.

The mortality rate from scrub typhus had ranged from 1 to 30 per cent. It was a severe medical problem. In order to evaluate the effect of this drug alternate cases were treated with it.

Method of Treatment.—Eight grams of para-aminobenzoic acid neutralized with a 5 per cent solution of sodium bicarbonate were given by mouth as an initial dose and then 3 grams every 2 hours. The maintenance dose was then adjusted according to the blood level of the drug. An attempt was made to keep the blood level between 30 and 60 mg. per cent.

Results

In this series[3] there were 34 patients with definitely proven scrub typhus: of these 16 were Americans, 16 Indians, and 2 Chinese. A separate alternate series was run on the Indians.

Effect of PABA on Temperature.—The favorable response to para-aminobenzoic acid therapy seemed to be apparent. After approximately 2 days of treatment the temperature started to fall by lysis and after 5 to 7 days it was normal

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*Read in General Clinical Session, Miami Day, Southern Medical Association, Fortieth Annual Meeting, Miami, Florida, November 4-7, 1946.

in the majority of the cases. Although the change was striking in most of the individual cases it was most impressive when one compared it to the alternate untreated controls. The overall difference in the temperature courses is brought out by comparing the average of the highest temperature each day in the treated cases to that in the controls. There were 10 more days of fever in the average of the control cases than in the average of the para-aminobenzoic acid cases.

Effect on General Symptoms.—Patients with severe scrub typhus appear toxic, apathetic and usually complain of a severe headache. The average duration of these symptoms is approximately 2 weeks but in those who received para-aminobenzoic acid there was an early change. After 2 to 3 days the headache was either gone or much less severe and in a number of cases the appetite had returned. In 2 patients the pronounced lymphadenopathy disappeared in 3 days. These are observations which impressed everyone who had close contact with the patients. It was quite apparent that the disease process was altered, particularly when one compared it to that in the controls.

Effect of Para-Aminobenzoic Acid in Decreasing the Complicating Conditions.—In the 16 control cases there was severe bronchitis in 14 and mild bronchitis in 1, while in the 18 PABA cases there was bronchitis in only 4 and this was mild and of very short duration. There was severe pneumonitis in 10 control cases but none in the para-aminobenzoic acid cases. Severe delirium occurred in 4 control cases and in 1 para-aminobenzoic acid case. Mild delirium occurred in 2 patients who had high para-aminobenzoic acid blood levels. Painful persistent peripheral neuritis occurred in 3 controls and partial deafness which lasted several weeks in 2 control cases. Bacterial complications occurred in 2 PABA cases, one of which was a parotitis and the other a recurrence of an otitis media.

Effect on Ultimate Severity of Disease.—There was a marked effect by PABA on the ultimate severity of the disease. The great majority of the cases receiving PABA had mild courses. There were no deaths and only one patient became gravely ill. Of the patients who did not receive PABA three died and seven were gravely ill.

Effect of PABA in Shortening the Convalescence.—The majority of the patients who received PABA required a much shorter period of convalescence than the control cases.

Effect of PABA on White Blood Count.—Four of the 18 patients treated with PABA developed leukopenia and granulocytopenia. This developed at the end of the course of treatment and in no case was it necessary to stop the drug during the acute stage of the disease. The white blood counts started to rise within 4 to 5 days after the PABA was discontinued and were normal at the time the patients were discharged. No change in the red blood counts or urine took place, which could be attributed to PABA.

Importance of Early Treatment.—These cases were all treated before the end of the first week of disease. The earlier treatment is begun the better, but it is not known how late PABA may be used and still be effective.

COMMENT

By considering the case fatality rate in the controls, which was 19 per cent, it is apparent that we were dealing with severe scrub typhus. Many of the PABA cases were very toxic toward the end of the first week of the disease when PABA was started. If the disease ran its usual course they would have been more toxic in the second week, as that is usually the worst week in scrub typhus. This did not happen. Instead of becoming worse they improved. After 2 to 3 days the temperature started to fall by lysis and there was definite symptomatic improvement. In 2 patients we observed the disappearance of a pronounced lymphadenopathy after 3 days of PABA therapy. There were few complicating conditions in the PABA cases and many in the controls.

The secondary temperature rise which occurred in 3 patients after the PABA was discontinued was associated with a recurrence of the generalized lymphadenopathy and a return of some of the original symptoms. We regarded it as a mild relapse. It seemed to be added evidence that the PABA had had a suppressive action on the disease.

Since all the rickettsial diseases conform to the same basic pattern, it is not unlikely that para-aminobenzoic acid may prove to be a general antirickettsial agent. The work of Anigstein and Bader[4] showing that PABA had a protective action on guinea pigs inoculated with spotted fever and the report by Rose and associates[5] suggests that the drug may be effective against this disease also.

Dr. Paul Smith[6] studied the effect of PABA on 29 patients with murine typhus. In this study alternate controls were not used and no blood determinations of the drug were made. The doses of PABA used were much smaller than in this series. Compared with the control cases the PABA cases had 3 days less fever and seemed to run a milder course.

PRECAUTIONS AND ADVICE REGARDING USE OF PABA

(1) Six to 8 grams are given initially, and 2 to 3 grams every 2 hours.

(2) Start the drug before the end of the first week of disease.

(3) Keep the blood concentration around 30-40 mg. per cent. Blood level determinations should be done every day!

(4) White blood cell counts should be made every 2 days and differential counts if the total is below 4,000.

(5) Stop the drug if the white cell count falls below 3,000.

(6) Adequate fluid intake must be maintained.

If para-aminobenzoic acid is used in this manner it should be well tolerated and without danger.

From the studies done on this drug it appears that we have an effective agent against rickettsial diseases in general. Thus para-aminobenzoic acid is widening the field of chemotherapy by attacking a new group of diseases for which there has been no cure.

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EDITORIAL DEPARTMENT

BANTING'S MIRACLE*

It is fitting that a biography of Banting should commemorate the dawn of the second quarter century of the insulin era in the therapy of diabetes mellitus. It is distinctly appropriate for Seale Harris to be the author of this biography because its factual basis rests upon the lifelong friendships with Banting and his associates which Dr. Harris established when he journeyed to Toronto shortly after the discovery of insulin to acquire at firsthand skill in imparting to his diabetic patients the benefits of the newly found remedy. Thereby professional and lay reader alike may feel assured that the text is medically accurate and that its abounding interest springs not from glamorizing distortions but from the subject itself as presented with the penetrating insight of a writer who has devoted a lifetime to diabetics and diabetes. The very charming foreword by Joslin reviewing the history of diabetic therapy furnishes an historical background of the human need for this drug.

Dr. Harris' biography will clear away many of the misconceptions which becloud Banting's great achievement even in medical circles. His discovery is dismissed in certain quarters as the lucky accident of a novice whose good fortune then ran out and who accomplished nothing more. In point of fact Banting discovered insulin because he possessed the vision to grasp the fact that duct ligation offered the method of isolating an hypothetical internal secretion undestroyed by digestive ferments; because with Best's valuable aid he transformed his vision into beautifully conceived and executed experiments; and because he had the courage and tenacity to pit his vision and his worldly goods against the failures of the past and against the judgment of the land's leading physiologist (Macleod). This is fulfillment of plan, not a stroke of luck. If in subsequent years, Banting did not again attain inspired heights, one may ask how many men do so even once. In humble terms, it does not detract from the glory of a no-hit ball game that a pitcher fails to hurl a second. Further, while less spectacular than the discovery of insulin, Banting's later researches into silicosis, resuscitation, and the Franks flying suit were far from insignificant.

Dr. Harris presents with complete fairness the merits of the bitter Macleod-Banting controversy which marred the otherwise exemplary management of a great new discovery, created two feuding camps, and was heightened by the joint Nobel prize award to the two principals. Had Professor Macleod's views prevailed and had Banting been less persistent and not possessed of influential friends with greater vision than Macleod, many a diabetic alive today would have joined his ill-fated fellows of the pre-insulin era. Granted that Macleod contributed greatly to the large-scale manufacture of insulin after its discovery and that its detection took place in his department, still his initial obstruction and ill will hardly aided its isolation or justified his assumption of major credit therefor. If Banting be lacking in magnanimity in his hatred of Macleod, certainly his feeling is understandable.

Each passing year adds to the magnitude of the miracle wrought by Banting and Best. The ever-expanding volume of insulin employed reflects the lives and the well-being directly due to it. Thanks to insulin and the adequate dietary which it permits, the well cared for diabetic has an excellent life and health expectancy, as evidenced by the recent decision of life insurance companies to issue policies to such risks. The benefits of insulin have spread into non-diabetic

*Harris, Seale: Banting's Miracle, with foreword by Elliott P. Joslin, M.D., 245 pages and 33 illustrations. Philadelphia: J. B. Lippincott Co., 1946. Cloth $3.00.

fields. Insulin preserved George Minot to find liver therapy for pernicious anemia, permitted Seale Harris to recognize hypoglycemia or hyperinsulinism, and opened the door to the shock therapy of psychoses. Finally, insulin has furnished a tremendous impetus to research into the endocrines and hepatic physiology, research which has broadened knowledge of many diseases and which one day will effect the cure of diabetes.

"Banting's Miracle" will be welcomed and appreciated by every diabetic, physician, and person who owes a debt of gratitude to the drug. It will stimulate better control of diabetes by patient and physician. The style of the book holds the reader's attention throughout, whether he be physician or layman. It portrays a little understood man with a vividness, sympathy, authenticity, and sustained interest which should place it in the ranks of the best selling biographies.

Seale Harris, who has contributed greatly to the prestige of Southern medicine, has again added to its stature. He merits richly the heartiest congratulations for a task superbly done.

SECONDARY ANEMIA

In Southern Medical territory a low hemoglobin percentage and erythrocyte count are so common that there is an increasing tendency among physicians to call them normal, and make no attempt to correct them. Often having failed to raise the blood count with the liver and vitamin preparations on the market, the clinician gives up and advises the patient to forget it. The normals of the blood cell count were established after many years of study, and should not be unceremoniously abandoned. Individuals with low hemoglobin have obviously a low oxygen carrying capacity and presumably subnormal function of every body tissue including both muscular and cerebellar activity. Determination of the etiology of the anemia obviously is essential to its treatment.

The facts recently demonstrated by Spies[1] and associates and subsequently many times confirmed, that many of the macrocytic hyperchromic (large highly colored red cell) anemias respond promptly and specifically to folic acid, suggest the importance of searching out early macrocytic anemias. The older established custom, frequently beneficial, of administering iron for secondary anemias: that is, microcytic hypochromic or small pale cell anemias, emphasizes the remediability of another type of anemia by different means. Estimation of the cell volume in all cases in which the total erythrocyte count or hemoglobin is low should be an important diagnostic test. Differentiation of at least two types of anemia, is of fundamental therapeutic importance. For the most part, the large cell anemias are not helped by iron; they may be hurt by it, and the small cell anemias are not usually helped by folic acid. The frequent lack of response to therapy of the microcytic or secondary anemias should stimulate study on these lines.

One of the experimental methods of producing severe secondary anemia is by extirpation of the pituitary gland. Crafts,[2] of Boston University School of Medicine, has investigated this type of anemia and attempted to prevent it or to treat it by several methods.

The anemia of hypophysectomy, he notes, is a microcytic hypochromic variety, with hypoplastic bone marrow. His animals showed a decrease in the total erythrocyte count and hemoglobin level, as well as hypochromia and microcytosis. The clinical treatment for anemia of this type, he says, is iron, which may be accompanied by copper and thyroxine. Accordingly a group of hypophysectomized animals was treated with ferrous sulfate. They maintained a normal red cell count for a month, following which the red count gradually decreased. Hemoglobin values in the same group remained normal for twenty days then fell. If ferrous sulfate was administered, microcytosis could be completely prevented, and there was some improvement in the bone marrow picture. When copper was added to the iron therapy, hemoglobin values were maintained longer. It was noted that the

1. Spies, Tom D.; and Stone, Robert E.: Some Recent Experiences with Vitamins and Vitamin Deficiencies. Sou. Med. Jour., this issue, page 46.

2. Crafts, Roger C.: The Effects of Iron, Copper, and Thyroxine on the Anemia Induced by Hypophysectomy in the Adult Female Rat. Amer. J. Anatomy, 79:267 (Sept.) 1946.

blood findings after thyroidectomy were very similar to those after hypophysectomy, and that the addition of thyroxine to the therapy of the hypophysectomized rats gave beneficial results. Iron, copper and thyroxine prevented the development of microcytosis and considerably reduced the hemoglobin drop. Injections of thyroxine with adequate quantities of ferrous and copper sulfate in hypophysectomized rats was the most nearly adequate treatment for prevention of the profound secondary anemia which always occurs in this condition.

One would of course hardly expect to find anemia of pituitary extirpation among human beings; but partial failure of this gland should be no less common in the present generation than goiter or diabetes. The pituitary, which stimulates most of the endocrine glands, is equally reactive to abnormalities of their function. Diminished pituitary function is probably not uncommon among adults.

Clinically the usual causes of microcytic hypochromic anemia are acute or chronic blood loss, infection, hypothyroidism, inadequate iron intake or other forms of malnutrition. The anemia of pyridoxine deficiency in dogs is a microcytic one. The anemia of hypophysectomy Crafts believes is largely a metabolic one, with iron perhaps involved. Iron metabolism in itself deserves more thorough elucidation; and diminished pituitary function should be considered as a possible cause of resistant secondary anemia.

The clinical anemias will be much better controlled as more differential diagnostic measures are employed. Studies of cell volume should be made routinely whenever a low red count or hemoglobin value is noted, so that at least two of the classes may be distinguished. The relationship of cell size in middle aged persons to the incidence and type of degenerative diseases, arteriosclerosis, hypertension, and arthritis is also worthy of study.

TONGUE PRINTS

An interesting part of the alimentary tract is the tongue, whose rough surface becomes smooth in certain forms of deficiency disease. The characteristic alterations are sometimes remediable and in the late stages unaffected by therapy. The fiery red tongue of pellagra is familiar in the literature and in practice. There are various grades of change in appearance of the filiform and fungiform papillae of the tongue.

To make study of this organ more accurate, Di Palma[1] of the Long Island College of Medicine has described a method of preparing tongue prints, like finger prints, and classifying the normal and several types or degrees of diseased tongues. The technic is simple and depends upon the use of an Evan's blue and gum acacia solution. Good prints may be prepared with this, which show some detail under the microscope, and the progress of a given case under therapy may be followed. Several abnormal variations in tongue pattern were also noted. Normals were described. Tongues were classified according to the number and type of papillae. The desquamated tongues had a pronounced decrease in filiform papillae but had their fungiform papillae intact; and the atrophic tongues showed complete absence of filiform papillae and a decided decrease in fungiform papillae.

One cannot but wonder how much more of the mucous membrane lining of the alimentary canal is affected in patients whose tongues show varying degrees of decrease of the papilliform elements.

TWENTY-FIVE YEARS AGO

From Journals of 1922

Growth of Pediatrics.[2]—This meeting represents the fifth anniversary of the birth of the Pediatrics Section of the Southern Medical Association * * * I believe an inventory taken of assets and liabilities at this stage in our development will be of value to this Section. * * * Prior to 1916 pediatrics in the South was practically unorganized. There was a small number of physicians devoting their entire time and attention to pediatrics. * * * The scientific program of the Southern Medical Association included pediatric deliberations in the program on internal medicine. * * * Organization of the Section on Pediatrics was perfected at the close of the Atlanta meeting. * * * Our Memphis meeting, with a time limit permitting only one afternoon session, was a brilliant success. * * * Drs. John Lovett Morse, Boston, Mass., and Franklin P. Gengenback, Denver, Colo.,

1. Di Palma, Joseph R.: Objective and Clinical Study of the Tongue. Arch. Int. Med., 78:405 (Oct.) 1946.

2. Mulherin, W. A.: Southern Pediatrics—Retrospective and Prospective. Chairman's Address, Section on Pediatrics, Southern Medical Association, Hot Springs, Ark., Nov. 14-21, 1921. Under Medicine, Internal Diseases, Pediatrics, Neurology, Diagnostic Methods, etc. Sou. Med. J., 15:1 (Jan.) 1922.

were our honor guests. * * * The result of our healthy and steady growth was plainly evident at our Louisville meeting. * * * Dr. Charles Gilmore Kerley, New York, N. Y., was our honor guest. * * * According to the last directory of the American Medical Association, 1921, there are 673 Southern physicians specializing in pediatrics. I will venture to say that five years ago there was not one-fifth of that number devoting their time and attention to pediatrics.

Advertisements, 1922.—Listers Diabetic Flour. Strictly starch-free. Produces bread, muffins, pastry that makes the distressing features of Diabetes grow less and less. Listers prepared casein diabetic flour—self rising. A month's supply of 30 boxes $4.85.[1]

More people die from pneumonia than any other disease. Approximately 25 out of every 100 cases end fatally. Dr. Gustav Goldman has demonstrated that at least twenty of these twenty-five deaths may be prevented by employing Bacterial Vaccines. Why delay and chance a fatal termination? Dr. Gustav Goldman's article appeared in American Medicine, March, 1921. Bacteriological Laboratories of G. H. Sherman, M.D., Detroit, U.S.A.[2]

1. Sou. Med. J., 15:48, 1922.
2. Ibid, p. 52.

Book Reviews

Skin Diseases in Children. By George M. MacKee, M.D., Professor of Clinical Dermatology, New York Post Graduate Medical School and Columbia University; and Anthony C. Cipollaro, M.D., Associate in Dermatology, New York Post Graduate Medical School, Columbia University. 448 pages with illustrations. New York and London: Paul B. Hoeber, Inc., 1946. Price $7.50.

This second edition contains little of the controversial material found in most skin volumes. Printing and illustrations are excellent. Diagnosis and treatment are stressed.

Special sections are devoted to tuberculosis and eczema, diseases of the mouth, hair and glands, and diseases due to physical agents, parasites, pyogenic bacteria, and fungi. There are also excellent contributed chapters by Frances Pascher on allergic dermatoses, by Eugene Traub on congenital anomalies, Nathan Sobel on contagious diseases, and Herman Beerman on syphilitic infections.

A B C of Medical Treatment. By E. Noble Chamberlain, M.D., M.Sc., F.R.C.P. 206 pages. New York: Oxford University Press, 1946. Price $3.00.

This is a pocket sized volume devoted exclusively to the treatment of the commoner disease conditions. The treatments suggested are those in everyday usage. Two pages of the appendix are devoted to a discussion of penicillin. Twenty-seven diets are included, some being given in two forms to conform to the strict war time rationing of Britain and the post-war period. It is a conservative and ordinary book.

Penicillin—Its Practical Application. By Sir Alexander Fleming, F.R.C.P., F.R.C.S., F.R.S., Nobel Prize Award, Discoverer of Penicillin; Professor of Bacteriology, University of London, St. Mary's Hospital, and 28 Contributors in Special Fields of Medicine. 380 pages with illustrations. Philadelphia: The Blakiston Company, 1946. Price $7.00.

Both physician and public have become very enthusiastic in ascribing feats to this drug, penicillin. Under the editorship of Dr. Fleming this book offers a conservative and rational therapeutic approach to its practical application. The more scientific practitioner will find in the first chapters the history and development of penicillin, its chemistry and manufacture, pharmacy and pharmacology and methods of administration. The writers have concluded from numerous experiments that 15,000 units of penicillin at three-hour intervals will give the maximum benefit for the smallest amount of drug.

The second portion of the book deals with the clinical results. Due to the numerous authors there is both overlapping and a minor diversity of opinion. The chapter on ophthalmology is insipid, the writer merely appearing hopeful that if penicillin is used, it "may be useful" or "possibly" will help.

A chapter on "Penicillin in Animal Diseases" increases the scope of the text, though the case reports are meager due to a shortage of the drug. While this text is ultra-conservative it will tend to develop in the mind of the reader a critical judgment in the use of penicillin and to conserve the drug and give clinically more brilliant results at less cost.

Early Ambulation and Related Procedures in Surgical Management. By Daniel J. Leithauser, M.D., F.A.C.S., Chief of Surgery, St. Joseph Mercy Hospital, Detroit, Michigan. First Edition. 232 pages with illustrations. Springfield, Illinois: Charles C. Thomas, Publisher, 1946. Price $4.50, postpaid.

Dr. Leithauser reports on 2,047 cases of early ambulation of which 807 were out of bed within three to four hours after surgery. He shows how early ambulation is a more physiological approach to the problem of the various complications which plague the surgeon in post-operative care. But he does not lose sight of the fact that surgical technic is most important in allowing early ambulation to be done safely. Details are given for pre-operative and postoperative care. The patient is not allowed any choice in getting up early and many are apprehensive, as shown by the pictures the first time or two. But subsequent pictures show their delight. This is an enthusiastic presentation backed by facts.

Cancer of the Scrotum in Relation to Occupation. By S. A. Henry, M.A., M.D. 112 pages with illustrations. London, New York and Toronto: Oxford University Press, 1946.

A small monograph recording the causative factors of cancer of the scrotum as shown by a survey of occupations. The writer has investigated a large number of these cases and presents data which include the time involved, the treatments and some of the preventive measures which may be of value.

Lippincott's Quick Reference Book for Medicine and Surgery. A Clinical, Diagnostic, and Therapeutic Digest of General Medicine, Surgery, and the Specialties, Compiled Systematically from Modern Literature. By George E. Rehberger, A. B., M.D. Thirteenth Edition. 1,461 pages with illustrations. Philadelphia: J. B. Lippincott Company, Publisher, 1946.

This is a practical text covering most of the conditions which the general practitioner will be called upon to treat. It is divided into sections each of which has been revised. The section on obstetrics, the skin and eye, ear, nose and throat have been entirely rewritten. It is easy to find a number of treatments for almost any ailment. Unfortunately the discussion on penicillin is very limited in the section on drugs. This is a most helpful book.

Women in Industry. Their Health and Efficiency. By Anna M. Baetjer, Sc.D., Assistant Professor of Physiological Hygiene, School of Hygiene and Public Health, The Johns Hopkins Hospital. Issued under auspices of the Division of Medical Sciences and the Division of Engineering and Industrial Research of the National Research Council. Prepared in the Army Industrial Hygiene Laboratory. 344 pages. Philadelphia: W. B. Saunders Company, 1946. Cloth $4.00.

This is an exhaustive review of the ability of women to perform work in industry. Primarily intended as a guide to the employment of women in wartime industry the facts are no less important during the postwar period. The data herein assembled have been procured from many sources all of which are documented in the references which follow each chapter. There are graphs and tables in profusion as well as resumes of the laws concerning the working woman.

The book provides the reader with a word picture of how best to utilize the ability of women. Due regard is given to their handicaps and how to lessen them. The medical examiner is given criteria for the making of an appraisal of the applicant's mental and physical capacity for work. A very practical book to those hiring, and supervising the work of women.

Sex, Marriage and Family. By Thurman B. Rice, A.M., M.D., Professor of Bacteriology and Public Health, Indiana University School of Medicine. First Edition. 272 pages. Philadelphia and New York: J. B. Lippincott Company. Price $2.50.

Dr. Rice presents sound logical advice on how to achieve a successful marriage. In his mind the attainment of this goal will give the partners the greatest happiness and satisfaction obtainable in life. He insists that each couple should have a honeymoon no matter how short and then explicitly tells of the various aspects and pitfalls of marriage as derived from his large experience. The problems of war marriage and the returned serviceman are discussed in a special section. While written for the newlywed the book will be profitable to any married couple.

Industrial Toxicology. By Alice Hamilton, A.M., M.D., and Rutherford T. Johnstone, M.D. Reprinted from Oxford Loose-Leaf Medicine with the same page numbers as in that work. 663 pages. New York: Oxford University Press, 1945. Price $2.50.

Industrial toxicology answers the questions of what chemicals used in industry may be harmful, how these harmful effects can be stopped or minimized, how they can be recognized in the individual and what treatments are effective. This monograph has been reprinted from Oxford Loose-Leaf Medicine. With the increasing use of chemical processes the facts contained in this text are of prime importance to both the industrial and private physician.

Dentistry An Agency of Health Service. By Malcolm Wallace Carr, D.D.S., Director of Oral Surgery and Visiting Oral Surgeon, Metropolitan Hospital. 219 pages. New York: The Commonwealth Fund, 1946. Price $1.50.

This volume starts with a brief general historical sketch of the practice of dentistry, leading into a discussion of present day American dentistry. Information is given about international dental relations, dental schools, practice in urban areas, rural areas, in industry and public health. National dental legislation and other problems that confront the dentist are discussed. The summary and conclusions note that, "The number of dentists may be sufficient to meet the total demand for dental health service, but nowhere are there enough dentists to provide dental health care for all who need it."

Peripheral Vascular Diseases. By Edgar V. Allen, B.S., M.A., M.D., M.S. in Medicine, F.A.C.P., Division of Medicine, Mayo Clinic, Assoc. Prof. Medicine, Mayo Foundation, Graduate School, Univ. Minnesota, and Nelson W. Barker, B.A., M.D., M.S. in Medicine, F.A.C.P., Division of Medicine, Mayo Clinic, Assoc. Prof. Medicine, Mayo Foundation, Graduate School, Univ. Minnesota; and Edgar A. Hines, Jr., M.D., B.S., M.A., M.S. in Medicine, F.A.C.P., Division Medicine, Mayo Clinic, Assoc. Prof. Medicine, Mayo Foundation, Graduate School, Univ. Minnesota; with Associates in the Mayo Clinic and Mayo Foundation. 871 pages, with 386 illustrations, 7 in color. Philadelphia and London: W. B. Saunders Company, 1946. Price $10.00.

There are many peripheral vascular diseases and most of them are closely interrelated to diseases of other

parts of the body. The authors recognize all vascular disease conditions peripheral to the heart, including those of the lymphatics, as peripheral vascular disease. However, they have not included a discussion of the vascular diseases of the central nervous system, hypertension, the surgical technics of operations on the central nervous system or the vascular diseases of certain viscera.

The reader is given definitions of the terms involved in this specialty, the anatomy and diagnosis. An entire chapter is devoted to special methods of investigation. The nailfold capillaries can give much information as can the human sweat. Methods of study are detailed. Throughout the book are interesting historical sketches of the pioneers in this field. The book is well written and gives a great deal of new information especially on medical and surgical treatment.

Pneumoperitoneum Treatment. By Andrew Ladislaus Banyai, M.D., F.A.C.P., F.C.C.P. 396 pages with illustrations. St. Louis: The C. V. Mosby Company, 1946. Price $6.50.

There are probably more books written on tuberculosis than on any other disease. This is one book, however, that fills a definite need, and will be more than welcomed by those treating tuberculosis.

This excellent monograph on pneumoperitoneum, by Dr. Banyai, presents the subject from every possible angle. Indications, contraindications, technic and complications are well presented. Considerable original work and painstaking detailed studies are evident in the practical, thorough way the subject is presented. The increasing use of pneumoperitoneum in the treatment of selected cases of tuberculosis needs to be guided properly by the authoritative information which this book well supplies.

The Modern Attack on Tuberculosis. Revised edition. By Henry D. Chadwick, M.D., and Alton S. Pope, M.D. 134 pages with illustrations. New York: The Commonwealth Fund, 1946. Price $1.00.

This small handbook has been thoroughly revised. New material on miniature films has been added. Case finding in mass surveys by this latest method is discussed in the light of the latest surveys. The practical application of known, well established methods of tuberculosis control are well described. Health officers will find this book especially helpful in providing an excellent plan for tuberculosis control in any community.

Shoulder Lesions. By H. F. Moseley, M.A., D.M., M. Ch. (Oxon.) F.R.C.S. (Eng. and C.), F.A.C.S., Montreal, Canada. Lecturer in Surgery, McGill University. 181 pages, illustrated. Springfield, Illinois: Charles C. Thomas, Publisher, 1945. Cloth $4.50.

In this small volume is found a review of the available methods of differential diagnosis and treatment of painful conditions about the shoulder girdle. It stresses simple and logical points in both diagnosis and treatment which are ordinarily forgotten or overlooked.

Neurosyphilis. By H. Houston Merritt, A.B., M.A. (Hon.), M.D., Professor of Clinical Neurology, Columbia University, Raymond D. Adams, M.A., M.D., Neuropathologist, Boston City Hospital, and Harry C. Solomon, B.S., M.D., Professor of Psychiatry, Harvard Medical School. 443 pages, with 58 illustrations, indexed. New York: Oxford University Press, 1946. Price $11.00.

The authors present their classification of neurosyphilis and in moderate detail cover most aspects of the subject.

Each type of central nervous system syphilis is discussed from the standpoint of historical background, gross and microscopic pathology, clinical manifestations, diagnosis, and treatment. A total of 189 case summaries are interspaced through the various chapters. A bibliography is inserted at the end of each chapter and many of the references are in foreign journals. The authors in general have drawn upon their own not inconsiderate volume of clinical material for statistical analyses.

The better features of the book are its clarity and precision of style, the neuropathology, and the neurologic approaches to the various syndrones. The least impressive feature is the handling of syphilotherapy, which perhaps reflects the lack of a syphilologist among the authors. The physical qualities of this volume are exceptionally good.

Modern Methods of Amputation. By Edmundo Vasconcelos, Professor, University of Sao Paulo, with an Introductory Survey of the Development of Amputation by Major General Norman T. Kirk, M.C., Surgeon General, U. S. Army. 253 pages with 262 illustrations. New York: The Philosophical Library, 1945. Price $10.00.

The 33-page introductory survey of the development of amputation by Gen. Kirk sketches the evolution of the art of amputation from earliest times to a period ending some years after World War I.

Professor Vasconcelos divides his book into six chapters. The first and second chapters present discussion of optimal amputation levels and technic. The third chapter is concerned with indications for amputation following trauma and infection or in the presence of malignancies or deformities.

The fourth and fifth chapters give description in detail of individual amputations and are profusely illustrated with excellent drawings.

The final chapter presents an illustrated description of suitable prostheses for different types of amputations.

This book will be highly interesting and instructive to general, industrial, and orthopedic surgeons.

The Tissues of The Body. An Introduction to the Study of Anatomy. By W. E. Le Gros Clark. 388 pages, with illustrations. Second edition. New York: Oxford University Press, 1945.

This second edition includes more than 100 representative references to work done since 1939 when the first edition appeared. The book is practically devoid of pedantic morphological trivia and goes far beyond the usual textbook of histology in pointing out the significance of the structural organization of the tissues. The author is well versed in the related fields of descriptive and experimental embryology, comparative anatomy, and anthropology and uses his diversified knowledge to give a more complete understanding of the subject.

The book will be of interest not only to students but to physicians who wish to know of experiments that are or may in the future be the foundation of clinical procedure. One may learn, for instance, the respective roles of mechanical force and genetic constitution in the growth of bones or the importance of tension and vitamins in the development or repair of tendons. Interesting notations are made such as the observation of the occasional occurrence in some persons of lymphatic vessels that by-pass lymph nodes possibly explaining a sudden death from septicemia after a slight wound.

The tissues are discussed under the headings of connective tissue, bone, cartilage, joints, muscle, blood and blood vessels, lymphatic tissue, mucous membranes and glands, skin, and nervous tissue. Some subjects such as blood and the lymphatic organ are covered less adequately than others. The author makes no pretense of being comprehensive. It was somewhat disappointing, however, not to see reference to the technic of transillumination in the study of the circulation in the spleen and other organs.

The book is well organized, readable, and stimulating.

Southern Medical News

SOUTHEASTERN SURGICAL CONGRESS

The Fifteenth Annual Assembly of The Southeastern Surgical Congress will be held at the Brown Hotel, Louisville, Kentucky, March 10-12, 1947. Dr. E. L. Henderson, Louisville, is President and will preside, and Dr. B. T. Beasley, Atlanta, Georgia, is Secretary General. The preliminary announcement gives some thirty distinguished clinicians who will participate in the program.

ALABAMA

Dr. Frank Wilson, Birmingham, was elected a Vice-President of the Southern Surgeons Association at its recent annual meeting held at Hot Springs, Virginia.

Dr. James Austin Davis, Jr., Bessemer, and Miss Mary Katherine Papandreou, Fredericksburg, Virginia, were married recently.

Deaths

Dr. T. C. Donald, Sr., Birmingham, aged 70, died December 5 of a heart attack.

ARKANSAS

Southeast Arkansas Medical Society has elected Dr. Julius Hellums, Dumas, President; Dr. C. G. Leverett, McGehee, Vice-President; and Dr. M. C. Crandall, Wilmot, Secretary-Treasurer.

Prairie County Medical Society has installed Dr. W. M. Parker, De Valls Bluff, President; and elected Dr. Travis Matthews, President; Dr. Edward Adams, De Valls Bluff, Vice-President; and Dr. J. C. Gilliam, Des Arc, Secretary-Treasurer.

Dr. J. C. Barnett, released from military service, has purchased the Estelle Hospital, Heber Springs.

Dr. T. N. Rodman, Newport, has moved to Leachville.

Dr. C. A. Archer, DeQueen, has been appointed a member of the Arkansas State Board of Health.

Dr. Dan H. Autry, Little Rock, has been appointed Consultant in Internal Medicine to the Surgeon General, United States Army.

Dr. Elizabeth D. Fletcher, Little Rock, has been appointed one of ten outstanding women doctors as Consultant on Medical Care for Women Veterans for the St. Louis, Missouri Branch Office, serving veterans in Missouri, Kansas, Arkansas, and Oklahoma.

Deaths

Dr. Louis Sharpe Dunaway, Jr., Conway, aged 46, died recently of lymphosarcoma.

DISTRICT OF COLUMBIA

Dr. Clifford A. Swanson, Captain, Medical Corps, U. S. Navy, has been named Surgeon-General of the U. S. Navy, with the temporary rank of Rear Admiral. He has been serving as Chief of the Eye, Ear, Nose and Throat Division of the Navy Dispensary and as Surgeon at the Bethesda Naval Medical Center, Bethesda.

Society of the United States Medical Consultants of World War II held its first meeting at the Army Medical Center, Washington, in October, 1946, co-hosts being Major General Norman T. Kirk, Surgeon General, United States Army, and Brigadier General George C. Beach, Jr., Commanding General, Army Medical Center and Walter Reed General Hospital. Officers elected were Dr. Walter Bauer, Boston, Massachusetts, President; Dr. Frank B. Berry, New York City, Vice-President; Dr. Brian Blades, Washington, Secretary; and Dr. Donald M. Pillsbury, Philadelphia, Pennsylvania, Treasurer.

Clinico-Pathological Society, Washington, has elected Dr. John Minor, President; Dr. Daniel B. Moffett, First Vice President; Dr. Arch L. Riddick, Second Vice-President; and Dr. Theodore J. Abernethy, Secretary-Treasurer.

Dr. Hugh S. Cumming, Washington, Director, Pan American Sanitary Bureau and Surgeon General (retired) of the U. S. Public Health Service, was presented with the Gran Cruz de Finlay in recognition of his service to humanity at a ceremony in the Academy of Medical Sciences at Havana, Cuba, recently.

Dr. Norvell Belt, Washington, has been appointed Physician-in-Charge, Venereal Disease Rapid Treatment Center at Gallinger Hospital operated by the Health Department.

Dr. Lawrence E. Putnam, Washington, has been appointed Director of the outpatient dispensary at Emergency Hospital to fill the vacancy caused by the recent death of Dr. John J. Shugrue.

Dr. Margaret D. Craighill, Veterans Administration Chief Consultant on care of Women Veterans, Washington, recently appointed ten women physicians, all veterans of wartime service with the Army and Navy, as consultants, in Veterans Administration hospitals and homes.

Dr. Martha M. Eliot, Washington, Associate Chief of the Children's Bureau, will take office as President of the American Public Health Association at the fall session in Atlantic City. Dr. Eliot will be the first woman President of this Association.

FLORIDA

Leon-Gadsden-Jefferson-Wakulla-Liberty County Medical Society has elected Dr. W. G. Miles, Chattahoochee, President; Dr. Taylor W. Griffin, Quincy, Vice-President; and Dr. G. H. Garmany, Tallahassee, Secretary.

Pinellas County Medical Society has elected Dr. M. E. Black, President; Dr. C. L. Harrington, First Vice-President; Dr. C. B. Wright, Second Vice-President; and Dr. W. C. McConnell, Secretary-Treasurer, all of St. Petersburg.

Dr. Harry L. Allan, St. Petersburg, has opened offices for the practice of general surgery and proctology.

The following have been appointed members of the Advisory Committee of the State Hospital Survey by the Governor; Dr.

W. C. Payne, Pensacola; Dr. Harrison A. Walker, Miami; and Dr. Wilson T. Sowder, Jacksonville.

Dr. A. O. Morton, Sarasota, announces his retirement from active practice of medicine.

Dr. Robert Y. H. Thomas and Miss Mary Bolling Duncan, both of Jacksonville, were married recently.

Deaths

Dr. Jediah Hussey Clark, Winter Park, aged 77, died recently.

Dr. Sheldon Alexander Morris, Jacksonville, aged 81, died recently of bronchopneumonia.

Dr. Edmund H. Teeter, Jacksonville, aged 65, died recently.

GEORGIA

Medical Association of Georgia will hold its next annual meeting at the Bon Air Hotel, Augusta, April 22-25.

Eighth District Medical Society has elected Dr. J. A. Leaphart, Jesup, President; Dr. W. W. Turner, Nashville, Vice-President; and Dr. G. T. Crozier, Valdosta, Secretary.

Georgia Association of Pathologists, organized some ten years ago by Dr. Everett L. Bishop, Atlanta, its first President, resumed its meetings in October 1946 and Dr. Bishop was again elected President; and Dr. Sidney C. Madden, Secretary.

Southeastern Allergy Association will hold its next meeting in Atlanta, January 18-19. Dr. Hal M. Davison, Atlanta, is President; Dr. J. Warrick Thomas, Richmond, Virginia, Vice-President; and Dr. Katharine B. MacInnis, Columbia, South Carolina, Secretary.

Dr. Paul B. Beeson, Atlanta, has been appointed Chairman, Department of Medicine, Emory University School of Medicine. Dr. Beeson is now conducting a special project in the study of fever under a $12,500 grant from the United States Public Health Service.

Dr. A. G. Bell, formerly of Swainsboro, has opened offices at Wrightsville for the practice of medicine.

Dr. C. I. Bryans, Jr., formerly of Augusta, announces the opening of offices at Baxley for the practice of medicine, being associated with Dr. J. T. Holt.

Dr. William C. Calhoun, formerly of Macon, is now associated with Dr. T. J. Ferrell, Waycross, practice limited to surgery and obstetrics.

Dr. Milford B. Hatcher, Macon, has been elected a senior fellow of the Southeastern Surgical Congress. Dr. Hatcher was recently chosen Assistant Director of the cancer clinic at Macon Hospital.

Dr. Forrest C. Hunter, former Director, Piedmont Medical Center, Augusta, is head of the Dermatology and Syphilology Department, University of Georgia School of Medicine, Augusta.

Dr. Fredric R. Minnich, Atlanta, announces the association of Dr. William C. Helms in the practice of obstetrics and gynecology.

Dr. Jack Clayton Norris, Atlanta, was recently notified that he had received the second Navy Unit Citation which had been given to the U.S.S. Solace for outstanding performance of duty during the battle of Pearl Harbor on December 7, 1941. Dr. Norris received another citation, the Bronze Star.

Dr. R. C. Pendergrass, Americus, head of the Department of Radiology, Phoebe-Putney Hospital, Albany, will continue to make his home and maintain his offices in Americus, spending Monday, Wednesday and Friday in Albany.

Dr. Virgil P. Sydenstricker, Professor of Medicine, University of Georgia School of Medicine, Augusta, has been notified by the British Embassy in Washington, D. C., that an award of the King's Medal has been made to him by King George VI of Great Britain in recognition of services rendered to the British Government during the war.

Dr. J. W. Williams, Jr., a native of Baldwin, has opened offices at Lavonia for the practice of medicine in the Health Clinic.

Dr. Charles Thornton Coward, Donalsonville, and Miss P. Eileen Holton, both of Atlanta, were married recently.

Deaths

Dr. David G. Elder. Chickamauga, aged 82, died recently.

Dr. Carl Clifton Garver, Atlanta, aged 43, was drowned recently.

Dr. Trimble Clarence Johnson, Atlanta, aged 52, died recently.

Dr. Walter A. Rivers, Glenwood, aged 79, died recently.

KENTUCKY

Dr. John E. Kincheloe, Hardinsburg, who has practiced in the county for forty-seven years was recently honored by a celebration at which was started a drive for funds for a county hospital to serve as a memorial to him. Dr. Kincheloe was recently presented with the E. M. Howard Memorial Award of the Kentucky State Medical Association.

Dr. John F. Ganem, Louisville, released from Navy service, has resumed the practice of medicine at Louisville.

Deaths

Dr. Eugene Fogle Beard, Somerset, aged 64, died recently of heart disease.

Dr. L. D. Carter, West Liberty, aged 92, died recently.

Dr. L. H. Boone, Wallins, aged 59, died recently.

Dr. Monroe Pennington, Mount Vernon, aged 74, died recently of a cerebral hemorrhage.

Dr. Ernest L. Floore, Sr., Louisville, aged 75, died recently.

Dr. William M. Watkins, Jeffersontown, aged 74, died recently.

LOUISIANA

New Orleans Graduate Medical Assembly will be held at the Municipal Auditorium, New Orleans, February 24-27.

Dr. Lucian W. Alexander, New Orleans, has been named head of the Medical Staff Committee of the $300,000 building fund campaign for the Eye, Ear, Nose and Throat Hospital, New Orleans. The new addition to the present building will be constructed at a cost of $600,000, $300,000 already available.

Dr. Alton Ochsner, New Orleans, has been named to receive the *Times-Picayune* Loving Cup for 1945, this emblem of unselfish civic service having been given annually since 1901 to a New Orleans citizen.

Dr. Roy L. Robertson, Shreveport, and Miss Gloria Anne Nobles, Gibsland, were married recently.

Deaths

Dr. Leslie Leon Lumsden, New Orleans, aged 71, died recently of leukemia and pneumonia.

MARYLAND

Dr. Russell H. Morgan, former Associate Professor of Radiology, University of Chicago, is Professor of Radiology, Johns Hopkins University School of Medicine, and Radiologist in Chief, Johns Hopkins Hospital, Baltimore. He will be in charge of a new Department of Radiology created at the University and the Hospital.

Dr. Reginald M. Archibald, Associate at the Rockefeller Institute for Medical Research, New York City, and special investigator at the hospital, has been appointed Professor of Biochemistry, Johns Hopkins University School of Hygiene and Public Health, Baltimore.

Dr. Victor Francis Cullen, Baltimore, retired January 1 as Superintendent of the Maryland State Sanatorium.

Dr. Charles Reid Edwards, Baltimore, was elected a Vice President of the Southern Surgeons Association at its recent annual meeting.

Deaths

Dr. Frederic Clarke Jewett, Baltimore, aged 78, died recently.

Dr. Howard Kahn, Baltimore, aged 68, died recently.

MISSISSIPPI

Dr. James Andrew Clark, Jr., Ruleville, and Miss Margaret Ellen Smith, Amite, Louisiana, were married recently.

Deaths

Dr. Armon French Wicks, Okolona, aged 66, died recently.

MISSOURI

Missouri State Medical Association will hold its eighty-ninth annual session in Kansas City, March 30-April 2.

American Board of Otolaryngology will conduct examinations at the Coronado Hotel, St. Louis, April 16-19, and at the Palmer House, Chicago, October 7-11.

American Congress on Obstetrics and Gynecology will be held in the Municipal Auditorium in St. Louis, September 8-12.

Missouri Tuberculosis Association has elected Dr. H. L. Mantz, Kansas City, President; Dr. Newell R. Ziegler, Columbia, First Vice-President; Dr. Howard Miller, Macon, Second Vice-President; and Dr. E. E. Glenn, Springfield, and Dr. Paul Murphy, to the Executive Committee.

Missouri Chapter of the Trudeau Society has elected Dr. Paul Murphy, St. Louis, President-Elect; Dr. D. L. Coffman, Kansas City, Secretary-Treasurer; and Dr. G. D. Kettelkamp, Koch, and Dr. E. E. Glenn, Springfield, to the Executive Committee.

Dr. Frank R. Teachenor, Kansas City, has been elected President, Harvey Cushing Society, national neurosurgical organization.

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OFFICERS

The following is a complete roster of the officers of the Southern Medical Association for 1946-1947, and of associations meeting conjointly with the Southern Medical Association:

President—Dr. E. L. Henderson, Louisville, Ky.

President-Elect—Dr. Lucien A. LeDoux, New Orleans, La.

First Vice-President—Dr. Oscar B. Hunter, Washington, D. C.

Second Vice-Presidents—Dr. Robert T. Spicer, Miami, Fla.

Secretary-Manager (Secretary, Treasurer and General Manager)—Mr. C. P. Loranz, Birmingham, Ala.

Editor of Journal—Dr. M. Y. Dabney, Birmingham, Ala.

Associate Editor of Journal—Mrs. Eugenia B. Dabney, Birmingham, Ala.

Councilors—Dr. Ray M. Bobbitt, Chairman, Huntington, West Va.; Dr. Harvey B. Searcy, Tuscaloosa, Ala.; Dr. Oliver C. Meison, Little Rock, Ark.; Dr. Arnold McNitt, Washington, D. C.; Dr. William C. Thomas, Gainesville, Fla.; Dr. W. A. Selman, Atlanta, Ga.; Dr. J. B. Lukins, Louisville, Ky.; Dr. Wiley R. Buffington, New Orleans, La.; Dr. F. A. Holden, Baltimore, Md.; Dr. J. P. Culpepper, Jr., Hattiesburg, Miss.; Dr. Daniel L. Sexton, St. Louis, Mo.; Dr. Arthur H. London, Jr. Durham, N. C.; Dr. Carroll M. Pounders, Oklahoma City, Okla.; Dr. W. L. Pressly, Due West, S. C.; Dr. Kate Savage Zerfoss, Nashville, Tenn.; Dr. Walter G. Stuck, San Antonio, Tex.; Dr. T. Dewey Davis, Richmond, Va. *Executive Committee of Council*—Dr. J. B. Lukins, Chairman; Dr. J. P. Culpepper, Jr.; and Dr. Arnold McNitt.

Board of Trustees (All are Past Preidents)—Dr. Paul H. Ringer, Chairman, Asheville, N. C.; Dr. M. Pinson Neal, Columbia, Mo.; Dr. Harvey F. Garrison, Jackson, Miss.; Dr. James A. Ryan, Covington, Ky.; Dr. E. Vernon Mastin, St. Louis, Mo.; Dr. M. Y. Dabney, Birmingham, Ala.

Section on General Practice—Dr. John R. Bender, Chairman, Winston-Salem, N. C.; Dr. J. T. Shelburne, Vice-Chairman, Critz, Va.; Dr. Shockley D. Gardner, Secretary, Poteet, Tex.

Section on Medicine—Dr. Arthur J. Schwertman, Chairman, Covington, Ky.; Dr. S. Marion Salley, Vice-Chairman, Miami, Fla.; Dr. William M. Nicholson, Secretary, Durham, N. C.

Section on Gastroenterology—Dr. Cecil O. Patterson, Chairman, Dallas, Tex.; Dr. Walter R. Johnson, Vice-Chairman, Asheville, N. C.; Dr. James L. Borland, Secretary, Jacksonville, Fla.

Section on Neurology and Psychiatry—Dr. Titus H. Harris, Chairman, Galveston, Tex.; Dr. Hervey M. Cleckley, Vice-Chairman, Augusta, Ga.; Dr. James L. Anderson, Secretary, Miami, Fla.

Section on Pediatrics—Dr. W. Ambrose McGee, Chairman, Richmond, Va.; Dr. W. W. McKibben, Vice-Chairman, Miami, Fla.; Dr. Samuel F. Ravenel, Secretary, Greensboro, N. C.

Section on Pathology—Dr. Iva C. Youmans, Chairman, Miami, Fla.; Dr. A. J. Ayers, Vice-Chairman, Atlanta, Ga.; Dr. Roger D. Baker, Secretary, Birmingham, Ala.

Section on Radiology—Dr. H. B. Ivey, Chairman, Goldsboro, N. C.; Dr. Gerard Raap, Vice-Chairman, Miami, Fla.; Dr. J. Marsh Frere, Secretary, Chattanooga, Tenn.

Section on Dermatology and Syphilology—Dr. C. Ferd Lehmann, Chairman, San Antonio, Tex.; Dr. Wiley M. Sams, Vice-Chairman, Miami, Fla.; Dr. Winfred A. Showman, Secretary, Tulsa, Okla.

Section on Allergy—Dr. Frank A. Simon, Chairman, Louisville, Ky.; Dr. J. Warrick Thomas, Vice-Chairman, Richmond, Va.; Dr. Mason I. Lowance, Secretary, Atlanta, Ga.

Section on Physical Medicine—Dr. Frances A. Hellebrandt, Chairman, Richmond, Va.; Dr. Wayne McFarland, Vice-Chairman, Washington, D. C.; Dr. George D. Wilson, Secretary, Asheville, N. C.

Section on Industrial Medicine and Surgery—Dr. Stanley J. Seeger, Chairman, Dallas, Tex.; Dr. Fritz LaCour, Vice-Chairman, Lake Charles, La.; Dr. J. J. Brandabur, Secretary, Huntington, West Va.

Section on Surgery—Dr. R. J. Wilkinson, Chairman, Huntington, West Va.; Dr. Joseph S. Stewart, Vice-Chairman, Miami, Fla.; Dr. J. Duffy Hancock, Secretary, Louisville, Ky.

Section on Orthopedic and Traumatic Surgery—Dr. Robert V. Funsten, Chairman, Charlottesville, Va.; Dr. Walter G. Stuck, Vice-Chairman, San Antonio, Tex.; Dr. C. E. Irwin, Secretary, Warm Springs, Ga.

Section on Gynecology—Dr. Robert E. Seibels, Chairman, Columbia, S. C.; Dr. Wendell Long, Vice-Chairman, Oklahoma City, Okla.; Dr. Walter L. Thomas, Secretary, Durham, N. C.

Section on Obstetrics—Dr. Frank R. Lock, Chairman, Winston-Salem, N. C.; Dr. E. Lee Dorsett, Vice-Chairman, St. Louis, Mo.; Dr. Williamson Z. Bradford, Secretary, Charlotte, N. C.

Section on Urology—Dr. Jarratt P. Robertson, Chairman, Birmingham, Ala.; Dr. E. Clay Shaw, Vice-Chairman, Miami, Fla.; Dr. Robert F. Sharp, Secretary, New Orleans, La.

Section on Proctology—Dr. Tom E. Smith, Chairman, Dallas, Tex.; Dr. Claude G. Mentzer, Vice-Chairman, Miami, Fla.; Dr. Hoyt R. Allen, Secretary, Little Rock, Ark.

Section on Ophthalmology and Otolaryngology—Dr. Calhoun McDougall, Chairman, Atlanta, Ga.; Dr. Shaler Richardson, Chairman-Elect, Jacksonville, Fla.; Dr. V. K. Hart, Vice-Chairman, Charlotte, N. C.; Dr. Alston Callahan, Secretary, Birmingham, Ala.

Section on Anesthesiology—Dr. Merrill C. Beck, Chairman, New Orleans, La.; Dr. Fred E. Woodson, Vice-Chairman, Tulsa, Okla.; Dr. Ralph S. Sappenfield, Secretary, Miami, Fla.

Section on Medical Education and Hospital Training—Dr. George T. Harrell, Chairman, Winston-Salem, N. C.; Dr. Edgar Hull, Vice-Chairman, New Orleans, La.; Dr. J. P. Gray, Secretary, Oklahoma City, Okla.

Section on Public Health—Dr. B. F. Austin, Chairman, Montgomery, Ala.; Dr. Virginia Howard, Vice-Chairman, Jackson, Miss.; Dr. Robert E. Fox, Secretary, Raleigh, N. C.

Women Physicians of Southern Medical Association—Dr. Estelle A. Magiera, Chairman, Jackson, Miss.; Dr. Emily Gardner, Vice-Chairman, Richmond, Va.

National Malaria Society (meeting conjointly with Southern Medical Association)—Mr. Mark D. Hollis, President, Washington, D. C.; Dr. E. Harold Hinman, President-Elect, Wilson Dam, Ala.; Dr. Wendell Gingrich, Vice-President, Galveston, Tex.; Dr. Martin D. Young, Secretary-Treasurer, Columbia, S. C.

American Society of Tropical Medicine (meeting conjointly with Southern Medical Association)—Dr. Edward I. Salisbury, President, New York, N. Y.; Dr. Joseph S. D'Antoni, President-Elect, New Orleans, La.; Dr. L. T. Coggeshall, Vice-President, Chicago, Ill.; Dr. Norman H. Topping, Secretary-Treasurer, Bethesda, Md.; Dr. Mark F. Boyd, Editor, Tallahassee, Fla. *American Academy of Tropical Medicine* (meeting conjointly with American Society of Tropical Medicine)—Dr. George K. Strode, President, New York, N. Y.; Dr. George C. Shattuck, Vice-President, Boston, Mass.; Dr. Ernest Carroll Faust, Secretary, New Orleans, La.; Dr. Jean A. Curran, Treasurer, Brooklyn, N. Y.

American College of Chest Physicians, Southern Chapter (meeting conjointly with Southern Medical Association)—Dr. Paul A. Turner, President, Louisville, Ky.; Dr. Herbert L. Mantz, First Vice-President, Kansas City, Mo.; Dr. Dean B. Cole, Second Vice-President, Richmond, Va.; Dr. Benjamin L. Brock, Secretary-Treasurer, Oteen, N. C.; Dr. David H. Waterman, Chairman, Program Committee, Knoxville, Tenn.

American Academy of Pediatrics, Region 2 (meeting conjointly with Southern Medical Association)—Dr. Warren W. Quillian, Chairman, Coral Gables (Miami), Fla.

Woman's Auxiliary to Southern Medical Association—Mrs. Wiley R. Buffington, President, New Orleans, La.; Mrs. Olin S. Cofer, President-Elect, Atlanta, Ga.; Mrs. Joseph W. Kelso, First Vice-President, Oklahoma City, Okla.; Mrs. Arthur L. Walters, Second Vice-President, Miami Beach, Fla.; Mrs. H. Leslie Moore, Treasurer, Dallas, Tex.; Mrs. Henry C. Ricks, Recording Secretary, Jackson, Miss.; Mrs. Carroll F. Gelbke, Corresponding Secretary, Gretna, La.; Mrs. H. E. Christenberry, Sr., Parliamentarian, Knoxville, Tenn.; Mrs. Harry M. Gilkey, Historian, Kansas City, Mo.

SOUTHERN MEDICAL ASSOCIATION

Minutes of Fortieth Annual Meeting

Miami, Florida, November 4-7, 1946

GENERAL PUBLIC SESSION

PRESIDENT'S NIGHT

Tuesday, November 5, 8:30 p.m.

The Association met in the First Christian Church, Miami, Florida, and was called to order by Dr. Robert T. Spicer, General Chairman for the Committee on Arrangements, Miami, who presided.

Rev. Everett S. Smith, Pastor, First Christian Church, Miami, delivered the invocation.

Dr. John W. Snyder, President, Dade County Medical Association, Miami, delivered an Address of Welcome for the Association.

Dr. Shaler A. Richardson, President, Florida State Medical Association, Jacksonville, delivered an Address of Welcome for the Association.

Dr. Harvey B. Searcy, Member of Council from Alabama, Tuscaloosa, responded to the Addresses of Welcome for the Southern Medical Association.

The General Chairman, Dr. Robert T. Spicer, then introduced the President of the Southern Medical Association, Dr. M. Y. Dabney, Birmingham, Alabama. On behalf of the Dade County Medical Association, a souvenir gavel, made from Florida ironwood with a silver plate appropriately engraved, was presented to Dr. Dabney, who presided for the remainder of the session.

Dr. M. Y. Dabney, President, Southern Medical Association, Birmingham, Alabama, delivered his President's Address entitled "The Conquest of Pain."

Dr. Harrison H. Shoulders, President, American Medical Association, Nashville, Tennessee, delivered an address entitled "The Impact of Scientific Progress on the Economics of Medical Care."

Dr. Jose Ramon Aldereguia, President, Colegio Medico Nacional de Cuba (National Medical Association of Cuba), Havana, Cuba, delivered an address in Spanish entitled "For a Better Interrelation of the Doctors of America" which was interpreted in English by Dr. Juan F. Lamas, Havana, Cuba.

Dr. Paul R. Hawley, Chief Medical Director, Veterans' Administration, Washington, D. C., delivered an address entitled "The Medical Program of the Veterans' Administration."

The Southern Medical Association's Research Medal was presented to Dr. William H. Sebrell, Jr., Chief of Division of Physiology, National Institute of Health, United States Public Health Service, Bethesda, Maryland, "in recognition of his important contributions to the understanding of nutrition and its relation to public health," the presentation being made by the President, Dr. Dabney.

The President, Dr. Dabney, called for the Report of the Council. Upon motion of Dr. M. Pinson Neal, Columbia, Missouri, duly seconded and carried without a dissenting vote, the Report of the Council, as prepared by the Chairman and to be published in full in the proceedings of this meeting, was approved without being read.

REPORT OF COUNCIL

Dr. Neil S. Moore, St. Louis, Missouri, Chairman of the Executive Committee of the Council, acting for the Chairman of the Council, presents the following report for the Council:

To the Members of the Southern Medical Association:

The Council convened in two sessions at the McAllister Hotel, Director's Room, Miami, Florida, Monday and Tuesday, November 4 and 5, 1946, 12:30 noon. Present: Dr. Neil S. Moore, Chairman of the Executive Committee, St. Louis, Missouri, acting for the Chairman, Dr. W. Raymond McKenzie, Baltimore, Maryland, who was prevented from attending on account of illness; Dr. Harvey B. Searcy, Tuscaloosa, Alabama; Dr. Oliver C. Melson, Little Rock, Arkansas; Dr. Arnold McNitt, Washington, D. C.; Dr. William C. Thomas, Gainesville, Florida; Dr. W. A. Selman, Atlanta, Georgia; Dr. J. B. Lukins, Louisville, Kentucky; Dr. Wiley R. Buffington, New Orleans, Louisiana; Dr. F. A. Holden, Councilor-Elect, Baltimore, representing Maryland by appointment of the President; Dr. J. P. Culpepper, Jr., Hattiesburg, Mississippi; Dr. William M. Coppridge, Durham, North Carolina; Dr. Carrell M. Pounders, Oklahoma City, Oklahoma (Tuesday only); Dr. W. L. Pressly, Due West, South Carolina; Dr. Kate Savage Zerfoss, Nashville, Tennessee; Dr. T. Dewey Davis, Richmond, Virginia (Tuesday only); and Dr. Ray M. Bobbitt, Huntington, West Virginia. Sitting with the Council: Dr. M. Y. Dabney, President, Birmingham, Alabama (Monday only); Dr. E. L. Henderson, President-Elect, Louisville, Kentucky; Dr. Daniel L. Sexton, Councilor-Elect from Missouri, St. Louis; Dr. Arthur H. London, Jr., Councilor-Elect from North Carolina, Durham; and Mr. C. P. Loranz, Secretary-Manager, Birmingham, Alabama.

The Council was called to order by Dr. Neil S. Moore, Acting Chairman, who presided.

The Secretary was instructed to write to the Chairman, Dr. McKenzie, expressing the regret of the Council at his illness and telling him how very much he was missed by the members of the Council.

The Council stood for a time with bowed heads in memory of three Past Presidents who have died since the last meeting: Dr. Waller S. Leathers, Nashville, Tennessee; Dr. J. Shelton Horsley, Richmond, Virginia; and Dr. Robert Wilson, Charleston, South Carolina.

Dr. Kate Savage Zerfoss, Councilor from Tennessee, Nashville, presented a resolution on Dr. Waller S. Leathers, Past President of the Southern Medical Association, Nashville, Tennessee, who died January 26, 1946.

WHEREAS, Dr. Waller S. Leathers of Nashville, Tennessee, a Past President of the Southern Medical Association, departed this life January 26, 1946; therefore,

BE IT RESOLVED, that the Council of the Southern Medical Association extend its sympathy to his family, and that a record of his attainments and achievements be made a part of the permanent archives of this Association.

Dr. Leathers was recognized as a great teacher, Dean of the University of Mississippi and Vanderbilt Medical School, and a leader of his fellow man in the profession for the betterment of public health for mankind. As an organizer in

state and national affairs as it related to his chosen branch of medicine he served untiringly. Honored by all in life, we pay tribute to him now as a faithful follower of the tenets laid down in the oath of Hippocrates; therefore,

BE IT FURTHER RESOLVED that a copy of this resolution be spread on the minutes of the Council and a copy sent to his family.

Dr. T. Dewey Davis, Councilor from Virginia, Richmond, presented a resolution on Dr. J. Shelton Horsley, Past President of the Southern Medical Association, Richmond, Virginia, who died April 7, 1946.

WHEREAS, Almighty God has seen fit to remove from our midst on April 7, 1946, Dr. J. Shelton Horsley of Richmond, Virginia, a Past President of the Southern Medical Association, a surgeon of National renown, an outstanding research student in his chosen field, and a medical writer of the first order; therefore,

BE IT RESOLVED, that the Council of the Southern Medical Association express deep regret at the passing of our friend.

Dr. Horsley was born in Albemarle County, Virginia. He graduated from the Medical School of the University of Virginia and for a time did general practice in Texas. He then took postgraduate training in this country and abroad before returning to Virginia when he began the practice of surgery in Richmond. He soon saw the need for more hospital service and founded St. Elizabeth's Hospital of which he was the head until his death. He was a pioneer in gastrointestinal surgery and was for many years a prominent figure in the field of cancer control and education; therefore,

BE IT FURTHER RESOLVED that a copy of this resolution be spread on the minutes of the Council and a copy sent to his family.

Dr. W. L. Pressly, Councilor from South Carolina, Due West, presented a resolution on Dr. Robert Wilson. Past President of Southern Medical Association, Charleston, South Carolina, who died May 20, 1946.

WHEREAS, it has pleased Almighty God to remove from our midst by death Dr Robert Wilson of Charleston, South Carolina, Dean Emeritus of the Medical College of the State of South Carolina and Past President of the Southern Medical Association; therefore,

BE IT RESOLVED, that the Council of the Southern Medical Association express its deep regret at the passing of this great physician, teacher, and leader.

Dr. Wilson was born in Statesboro, South Carolina in 1868. He was Dean of the Medical College of the State of South Carolina for thirty two years. He died May 20, 1946. He was in all probability the most beloved and respected of all people connected with the medical profession in that state; therefore,

BE IT FURTHER RESOLVED that a copy of this resolution be spread on the minutes of the Council and a copy sent to his family.

Dr. Neil S. Moore, St. Louis, Missouri, Chairman of the Executive Committee of the Council, reported for the Committee as follows:

REPORT OF EXECUTIVE COMMITTEE

To the Members of the Council—

Gentlemen:

As Chairman of your Executive Committee I wish to submit the following report for the Committee:

The Executive Committee of the Council met at St. Louis, Missouri, May 13, 1946. Those present: Dr. Neil S. Moore, Chairman, St. Louis, Missouri; Dr. J. B. Lukins, Louisville, Kentucky; and Dr. J. P. Culpepper, Hattiesburg, Mississippi. Sitting with the Committee by invitation of the Chairman: Dr. E. L. Henderson, President-Elect, Louisville, Kentucky; Dr. W. Raymond McKenzie, Chairman of the Council, Baltimore, Maryland; Dr. Walter C. Jones, Immediate Past Chairman of the Council, Miami; Dr. Irvin Abell, Sr., Past President and Chairman of Trustees, Louisville; Dr. M. Pinson Neal, Past President and Trustee, Columbia, Missouri, Dr. E. Vernon Mastin, Past President and Trustee, St. Louis, Missouri; Dr. Curtice Rosser, Immediate Past Chairman of Executive Committee, Dallas, Texas; Mr. C. P. Loranz, Secretary-Manager, Birmingham, Alabama; and Mr. Chase Delony, Assistant to Mr. Loranz, Birmingham, Alabama. Dr. Lucien A. LeDoux, First Vice-President, and former Chairman of the Council and of the Executive Committee, New Orleans, was invited but was prevented from attending.

The Executive Committee convened at 10:00 a.m. at the Coronado Hotel and concluded its business by lunch time. Two items were referred to the Committee from the Council at the Cincinnati meeting: (1) the invitation from the Orleans Parish Medical Society to hold the 1946 meeting under their sponsorship and (2) developing program plans for the 1946 meeting. In addition to the invitation from the Orleans Parish Medical Society there was an invitation from the Dade County Medical Association, Miami, Florida. After careful consideration the invitation of the Dade County Medical Association to meet in Miami was unanimously accepted.

It was brought out that due to other conventions already booked for Miami that the Southern Medical Association meeting would have to be either November 4-7 or November 25-28, the latter date being Thanksgiving week. The Committee decided that the meeting would be held on November 4-7.

The program plan for the Miami meeting was next given careful consideration and it was the judgment of the Committee, and they were unanimous in their judgment, that although the war was over the situation was such that it was deemed advisable to again streamline the scientific program, to limit the sections to one scientific session with a minimum of five papers and a maximum of seven except the Section on Ophthalmology and Otolaryngology which could have two sessions with a minimum of ten papers and a maximum of fourteen.

The Committee decided that if the Dade County Medical Association, Miami, desired there could be a general clinical session program, a so-called "Miami Day," two sessions Monday afternoon and two sessions Tuesday forenoon, one of the medical specialties and the other of the surgical specialties. It was decided that there should be one general public session on Tuesday evening.

Anticipating that the host association might wish to have some form of entertainment, it was decided that the official entertainment for the meeting, if the Dade County Medical Association desired to have some form of entertainment, would be a reception and ball on Wednesday evening.

Since the meeting would be so close to Cuba and with a desire to establish better social and professional relationship with the medical profession of Cuba the Committee approved the suggestion that the President of the National Medical Association of Cuba be invited to address the Association along with the President of the Southern Medical Association and the American Medical Association. The Secretary-Manager was instructed to extend an invitation to leading members of the medical profession of Cuba to attend the Miami meeting and to suggest to some of the scientific sections that they invite outstanding Cuban physicians to appear on their program. The Secretary-Manager was authorized to arrange official post-convention tours to Havana, Cuba, and Nassau, Bahamas, if he thought advisable to arrange such tours.

The question of whether or not there should be official alumni reunion and fraternity luncheons for this meeting was discussed and after very careful consideration it was decided that it would probably be well not to attempt this year to have at Miami, alumni reunion dinners and fraternity luncheons as official activities. It was decided to resume the golf tournament.

It was the judgment of the Committee that the Woman's Auxiliary should be given permission to resume their activities at the Miami meeting but it was thought that they should streamline their program, both social and otherwise.

The Secretary-Manager was given permission to give the title of Assistant Secretary-Manager to any assistant he might have, at his discretion, this to be done informally and without change of the By-Laws.

The Secretary-Manager presented to the Committee a suggestion that the library of the Association be given to The Medical College of Alabama, now located at Birmingham, the library to be a part of the Medical College library which would be much more complete than the Association library. It was thought advisable to give this matter further consideration.

The Executive Committee gave consideration to the matter of Association dues which since 1925 have been $4.00 per year, it being the judgment of the Executive Committee that the dues of the Association should be increased to $5.00 and they so recommend.

It was suggested to the Executive Committee at its meeting in Birmingham last year that consideration be given to the establishing of life memberships and the Secretary-Manager at the Birmingham meeting was instructed to give this matter consideration and report to the Executive Committee. This he did. After careful consideration it was the judgment

of the Executive Committee that life memberships should not be established at this time.

The Secretary-Manager called the attention of the Committee to the words "white physicians" which had been used in the promotion at previous meetings, this being in harmony with the wording of the Constitution, permitting only white physicians to be members. The ExecutiveCommittee authorized the Secretary-Manager to continue to use the words "white physicians" in all promotion work.

The Executive Committee authorized a "Southern Medical Association Night" of the Dade County Medical Association, Miami, this to be a scientific program followed by a smoker, the expenses of the speakers to the meeting and of the smoker to be borne by the Association, this to be had if the officers of the Dade County Medical Association wished to have such a night. Such a meeting was held in June, addresses being made by Dr. M. Y. Dabney, President, Birmingham, Alabama; Dr. Irvin Abell, Sr., Past President and Chairman of the Board of Trustees, Louisville, Kentucky; and Dr. E. L. Henderson, President-Elect, Louisville, Kentucky. This meeting was held at the Miami Auditorium where the main activities of the Association would be held in November and the smoker in the patio adjoining. There was a large attendance of the members of the Dade County Medical Association present at this "Southern Medical Association Night."

The Secretary-Manager called the attention of the Committee to the visit of the President and Secretary of the Medical Exhibitors Association to the Birmingham meeting of the Executive Committee last year and the requests that were made by that Association, these requests being referred to the Secretary-Manager for such action as he deemed wise to take. He reported that a very satisfactory committee had been appointed from the Medical Exhibitors Association to work with the Association office in connection with the Cincinnati meeting and that most cordial relationship existed between the Association management and the Medical Exhibitors Association, the association that represented almost a hundred per cent of the business firms that exhibit at medical meetings.

Dr. John W. Williams, Jr., Jefferson City, Missouri, Secretary of the American Public Health Association, Southern Branch, appeared before the Committee in his official capacity and presented the desires of his Association as to program activities in connection with the Southern Medical Association. He made it clear that the officers of the Southern Branch were most anxious to continue the very pleasant relationship which had existed between his organization and the Southern for some years and expressed the appreciation of his organization for the privilege of meeting conjointly with the Southern Medical Association.

After concluding its business the Committee adjourned for lunch, the wives of those who were with their husbands at this meeting having lunch with the Committee.

In honor of the Committee the Southern Medical Association was host to a dinner at the Coronado Hotel in the evening. The officers of the Southern Medical Association in St. Louis, officers of the St. Louis Medical Society, officers of the St. Louis County Medical Society, officers of the Missouri State Medical Society, deans of the medical schools and some officers of the local Woman's Auxiliary were guests of the Association for the dinner.

Respectfully submitted.

(Signed) NEIL S. MOORE, *Chairman*,
J. B. LUKINS,
J. P. CULPEPPER, JR.,
Committee.

Miami, November 4, 1946

The Report of the Executive Committee as given by the Chairman was unanimously approved by the Council.

To make effective the recommendation of the Executive Committee that the dues of the Association be $5.00 per year, the Council recommends to the Association that Section 1, Chapter 8, of the By-Laws be amended to read as follows: "The dues of this Association shall be $5.00 per year payable annually in advance, effective November 1, 1946, membership to begin on date of application." This amendment was presented on Monday and was laid on the table, and with the adoption of this Report by the Association on Tuesday the amendment becomes effective.

Announcement is made of the Committee appointed by the Chairman, Dr. McKenzie, to judge Scientific Exhibits: Dr. T. Dewey Davis, Chairman, Richmond, Virginia; Dr. R. L. Sanders, Memphis, Tennessee; Dr. Oscar B. Hunter, Washington, D. C.; Dr. Lenox D. Baker, Durham, North Carolina; and Dr. Alston Callahan, Birmingham, Alabama.

The Council confirmed a vote by mail approving a recommendation of the Research Medal Committee that the research medal be given to Dr. William H. Sebrell, Jr., Chief of Division of Physiology, National Institute of Health, United States Public Health Service, Bethesda, Maryland, "in recognition of his important contributions to the understanding of nutrition and its relation to public health."

The Council changed the personnel of the Research Medal Committee, making the President-Elect of the Southern Medical Association a member and Chairman of the Committee, the other members to be the last four recipients of the medal.

Dr. Henry H. Turner, Oklahoma City, officially representing the Oklahoma County Medical Society, extended an invitation from the Society for the Association to meet in Oklahoma City in 1948. The Council expressed to Dr. Turner its appreciation for this invitation which was laid on the table to be considered by the Council at its meeting next year.

The Council expressed to Mr. C. P. Loranz, the Secretary-Manager, its sympathy on the recent death of his mother.

At the Council meeting on Tuesday the Report of the Board of Trustees, incorporating the Report of the Secretary-Manager, was read and approved. The Council in approving the Report of the Trustees makes effective a salary increase to the Secretary-Manager, and joins with the Trustees in extending thanks and appreciation to Mr. Loranz for the splendid way he has managed the Association affairs this past year.

REPORT OF TRUSTEES

To the Council of the Southern Medical Association:

The Trustees of the Southern Medical Association met at the McAllister Hotel, Director's Room, Miami, Florida, Monday, November 4, at 9:30 p.m. Present: Dr. Irvin Abell, Sr., Chairman, Louisville, Kentucky; Dr. M. Pinson Neal, Columbia, Missouri; Dr. Harvey F. Garrison, Jackson, Mississippi; Dr. James A. Ryan, Covington, Kentucky; Dr. E. Vernon Mastin, St. Louis, Missouri; and Dr. E. L. Henderson, Louisville, Kentucky, President-Elect, sitting for Dr. Paul H. Ringer, Asheville, North Carolina.

The Secretary-Manager, Mr. C. P. Loranz, presented his financial report for eleven months ending September 30, 1946. (The report to be printed in the proceedings of the meeting to be for the fiscal year, twelve months ending October 31, 1946.) The report was approved as presented and Mr. Loranz was extended the thanks and appreciation of the Board for the splendid way he had managed the Association affairs this past year. The report is here transmitted to the Council.

The Board of Trustees recommends a salary increase of $2,400.00 per year to Mr. C. P. Loranz, Secretary-Manager, retroactive to January 1, 1946.

There being no further business, the Trustees adjourned.

(Signed) IRVIN ABELL, SR., *Chairman.*

REPORT OF SECRETARY-MANAGER

A detailed financial statement for the fiscal year ending October 31, 1946 is here given and is self-explanatory. It will be noted that the net profit for the year is $11,583.82. The cash on hand in bank as shown by the cash book is $7,518.58.

Included in the assets of the Association are registered United States Government Bonds, purchase value $72,350.00. We reported last year United States Government Bonds to the amount of $60,126.40. We have purchased this year bonds to the amount of $12,217.50.

The books of the Association were audited by Francis B. Latady & Company, Certified Public Accountants.

Last year we reported 6,679 members, and during the year we received 601 new members. The losses from resignations, deaths and suspensions were 497, leaving a net membership at this time of 6,983, or a net gain for the year of 304.

As your Secretary, Treasurer and General Manager, carrying the title of Secretary-Manager, I have endeavored this year, as I have in the past years, to conduct your affairs in a satisfactory manner, trying at all times to be faithful and efficient. I have tried to be as economical as possible and to carry on the Association activities at the lowest cost without curtailing any more than possible the size of the JOURNAL each month and other Association affairs.

I wish to express my appreciation for the cooperation of the President and Editor, Dr. M. Y. Dabney, and all other offi-

BALANCE SHEET

Balance Sheet, Southern Medical Association, Fiscal Year Ending October 31, 1946 (November 1, 1945, to October 31, 1946)

		Debits	*Credits*
Surplus			$ 77,190.33
U. S. Government Bonds		$ 72,350.00	
Air Lines Travel Fund		641.82	
Paper Stock (print paper on hand)		3,050.09	
Furniture and Fixtures		3,580.25	
Profit and Loss		396.52	
Depreciation			1,627.13
Revenue			
Advertising	$48,365.38		
Dues	25,181.75		
Subscriptions	2,514.75		
Reprints	363.30		
Exhibits	18,740.00		
Interest on Bonds and Sav.	2,131.10		
Paper Stock Profit	470.34		
Interest and Discount	90.30—		97,856.92
Expenses			
Publishing	$25,365.02		
Cuts and Electros	1,840.06		
Journal Wrappers	536.08		
Second Class Postage	1,260.00		
Office Postage	2,048.50		
Salary	27,912.95		
Section Stenographers	1,205.00		
Stationery and Printing	4,285.60		
Office Supplies and Expense	581.14		
Telephone and Telegraph	614.60		
Office Rent	2,740.00		
Subscription Commissions	32.00		
Advertising Expense	290.00		
Addressograph Expense	60.82		
Traveling Expense	5,467.82		
Expense at Cincinnati	7,961.47		
Banking Expense	19.23		
Section Secretaries' Expense	447.94		
Woman's Auxiliary	250.00		
General Expense	2,958.35—	85,876.58	
Accounts Receivable (owe us)		3,404.75	
Accounts Payable (we owe)			144.21
Cash		7,518.58	
		$176,818.59	$176,818.59

SUMMARY OF EARNINGS

Revenue Accounts	$ 97,856.92
Expense Accounts	85,876.58
Gross Profit	11,980.34
Less Profit and Loss	396.52
Net Profit for Year Ending October 31, 1946	$ 11,583.82

SURPLUS ACCOUNT

Surplus October 31, 1945	$ 77,190.33
Net Profit for Year Ending October 31, 1946	11,583.82
Surplus October 31, 1946	$ 88,774.15

STATEMENT OF ASSETS AND LIABILITIES

October 31, 1946

Assets

U. S. Government Bonds	$ 72,350.00
Air Lines Travel Fund (deposit)	641.82
Paper Stock (print paper on hand)	3,050.09
Furniture and Fixtures (net—less depreciation)	1,953.12
Accounts Receivable (owe us)	3,404.75
Cash	7,518.58
	$ 88,918.36

Liabilities

Surplus	$ 88,774.15
Accounts Payable (we owe)	144.21
	$ 88,918.36

cers, general and of the sections, the Associate Editor, Mrs. Dabney, and all those working with me at headquarters, as well as the General Chairman for the Miami meeting, Dr. Robert T. Spicer, and those working with him. I appreciate their help and cooperation.

(Signed) C. P. Loranz, *Secretary Manager.*

REPORT OF AUDITOR

To the Southern Medical Association:

We have audited the books and accounts of the Southern Medical Association for the fiscal year ending October 31, 1946, and

WE HEREBY CERTIFY that in our opinion the Trial Balance, Summary of Earnings, Surplus Account and Statement of Assets and Liabilities, which are hereto attached, correctly set forth the condition of the Southern Medical Association as at October 31, 1946, and the results of its operations for the fiscal year ending on that date.

The reserve of United States Government Bonds, at cost, amounted on the balance sheet date to $72,350.00. Bonds costing $15,156.40, were redeemed during the year and there was a further investment of $27,380.00, thus increasing this reserve by $12,223.60, to its present figure of $72,350.00, which represents the actual cost of these bonds. The bonds in this reserve were examined by us, in the presence of your Secretary-Manager, Mr. C. P. Loranz, and were found to be in proper order in every respect.

The books and accounts of your Association were found to be in excellent condition, and we received from your manager and office force the most effective co-operation in the performance of this engagement.

(Signed) Francis B. Latady & Co.,
Certified Public Accountants.
By Francis B. Latady, C.P.A.

Birmingham, Alabama, December 11, 1946.

The Council charged its Executive Committee with the responsibility of determining where the meeting next year (1947) would be held and of developing program plans for that meeting, this to be done at the meeting of the Executive Committee in the Spring of next year (1947).

Dr. Ray M. Bobbitt called to the attention of the Council the matter of the relationship between the physicians and hospitals, to the growing trend of hospitals to enter into and take over the practice of medicine. It was the opinion of the Council as shown by much discussion that this is a serious matter and that cognizance should be taken of it. It was moved and carried unanimously that the Chairman of the Council appoint a committee of five, one of whom should be a member of the Council, which would (1) make a study of this problem, (2) suggest how the entire membership may be properly acquainted with the danger involved,

MEMBERS BY STATES

The following is a comparative statement of membership of the Southern Medical Association for the past seven years:

	1940	1941	1942	1943	1944	1945	1946
Alabama	427	434	407	390	398	416	463
Arkansas	303	295	248	226	212	219	224
District of Columbia	172	163	150	163	163	170	271
Florida	375	374	373	362	323	316	453
Georgia	535	530	491	435	400	449	433
Kentucky	527	591	500	440	428	437	494
Louisiana	489	474	438	420	395	386	405
Maryland	393	381	354	343	335	332	364
Mississippi	380	360	310	299	262	251	266
Missouri	522	703	642	558	559	627	648
North Carolina	369	368	371	396	389	383	410
Oklahoma	662	461	384	338	314	305	327
South Carolina	187	206	199	205	207	191	213
Tennessee	602	575	482	448	423	415	471
Texas	956	956	861	800	735	738	732
Virginia	393	383	381	455	429	428	466
West Virginia	244	234	211	216	232	234	246
Other States and Foreign	70	89	181	353	437	382	127
Totals	7606	7577	7083	6847	6641	6679	6983

and (3) develop a plan by which a better understanding can be had between the physician and the hospital authorities in a solution of the problem. The action of this Committee must be in harmony with the Constitution of the Southern Medical Association. The Committee shall report its findings and recommendations to the Executive Committee of the Council who in turn will carefully examine the report and pass it on with its recommendations to the Council for final action.

The Council, speaking for the Association, expresses to the Dade County Medical Association its sincere appreciation for the invitation to meet in Miami and for the fine cooperation and genuine hospitality extended by its members and to the Florida State Medical Association for joining with the Dade County Medical Association in the invitation to meet in Miami and for the fine cooperation on the part of its officers and members. The Council also expresses sincere appreciation to the City of Miami for the use of the Miami Auditorium; to the Convention and Publicity Bureau of the City of Miami; to the hotels, press, and all others who have contributed to the success of the meeting. The meeting is a very successful one and those in attendance are enjoying the sincere hospitality of the profession of the host society and feel that a great measure of credit for this splendid meeting is due to the interest and fine cooperation of the physicians of Dade County.

The Council proceeded to the election of three Trustees for a term of two years each, the terms of Dr. Irvin Abell, Sr., Dr. M. Pinson Neal and Dr. James A. Ryan expiring with this meeting. According to precedent Dr. Abell, oldest member in point of service, was retired, and Dr. Neal and Dr. Ryan were reelected, and the outgoing President, Dr. M. Y. Dabney, was elected in place of Dr. Abell.

The Council elected Dr. Arnold McNitt, Washington, D. C., a member of the Executive Committee for a term of three years to succeed Dr. Neil S. Moore, whose term expires with this meeting.

The Council elected Dr. J. B. Lukins, Louisville, Kentucky, Chairman of the Executive Committee.

The Council elected Dr. Ray M. Bobbitt, Huntington, West Virginia, its Chairman for next year.

The Council adjourned as an Executive Body to meet at the regular meeting in 1947.

(Signed) NEIL S. MOORE, *Acting Chairman.*

The President, Dr. Dabney, then called for the Report of the Nominating Committee.

REPORT OF NOMINATING COMMITTEE

Dr. Neil S. Moore, St. Louis, Missouri, Chairman of the Executive Committee and Acting Chairman of the Council, as Chairman of the Nominating Committee, presents the Report of the Committee:

The Council, as your Nominating Committee, presents for your consideration the following:

For President-Elect: Dr. Lucien A. LeDoux, New Orleans, Louisiana.

For First Vice-President: Dr. Oscar B. Hunter, Washington, D. C.

For Second Vice-President: Dr. Robert T. Spicer, Miami, Florida.

The Secretary, Treasurer and General Manager, carrying the title of Secretary-Manager, Mr. C. P. Loranz, Birmingham, Alabama, was elected four years ago for a term of five years.

The Editor, Dr. M. Y. Dabney, and Associate Editor, Mrs. Eugenia B. Dabney, Birmingham, Alabama, to be reelected for a term of three years.

(Signed) NEIL S. MOORE, *Acting Chairman.*

It was moved that the Report of the Nominating Committee be adopted and the nominees elected by acclamation, the motion being duly seconded and carried without a dissenting vote. The President, Dr. Dabney, then declared the nominees duly elected.

Dr. E. L. Henderson, Louisville, Kentucky, President-Elect and incoming President, was presented by the President, Dr. Dabney, and duly installed President of the Southern Medical Association, effective at the close of this annual meeting.

Dr. Neil S. Moore, Chairman of the Executive Committee of the Council and Acting Chairman of the Council, presented a Past-President's Medal to Dr. M. Y. Dabney, retiring President.

After announcements, the General Session adjourned and with the completion of the programs on Wednesday and Thursday, the 1946 session of the Association adjourned.

SCIENTIFIC AWARDS

The Committee on Scientific Awards presented the following report:

Your Committee on Scientific Awards visited the scientific exhibits and, after studying the exhibits, makes the following report:

First award to Amos Christie and J. Cyril Peterson, Vanderbilt University School of Medicine, Nashville, Tennessee, for their exhibit on pulmonary calcifications and histoplasmin sensitivity.

Second award to J. Brown Farrior, Tulane University School of Medicine, New Orleans, Louisiana, for his exhibit on ear surgery.

Third award to K. S. Grimson, G. J. Baylin, H. M. Taylor, F. H. Hesser, R. W. Rundles and R. C. Smith, Duke University School of Medicine, Durham, North Carolina, for their exhibit on vagotomy for peptic ulcer.

Honorable mention to—

Cecil O. Patterson, Milford O. Rouse and John S. Bagwell, Southwestern Medical College, Dallas, Texas, for their exhibit on the injection treatment of esophageal varices.

Grace A. Goldsmith, Tulane University School of Medicine, New Orleans, Louisiana, for her exhibit on treatment of macrocytic anemia with pteroylglutamic acid (folic acid).

George Burch and Thorpe Ray, Tulane University School of Medicine, New Orleans, Louisiana, for their exhibit on plethysmography in practice.

Hamilton H. Anderson, Herbert G. Johnstone and Eder L. Hansen, University of California Medical School, San Francisco, California, for their exhibit on chemotherapy of experimental amebiasis (including pathology and protozoology of the disease).

Robert E. Seibels, The Bob Seibels Jr. Memorial Laboratory, Columbia, South Carolina; Ernest Ayre, Royal Victoria Hospital, Montreal, Canada; and Clair Folsome, Ortho Research Foundation, Linden, New Jersey, for their exhibit on diagnosis of uterine cancer by the stained vaginal spread.

While it is not within the province of the Committee on Scientific Exhibits to judge the Hobby Exhibits, our Committee desires to comment favorably on the Hobby Exhibits and particularly upon the very beautiful exhibit of orchids, the hobby of Dr. Walter C. Jones, Miami, Florida.

(Signed) T. DEWEY DAVIS, *Chairman,*
R. L. SANDERS,
OSCAR B. HUNTER,
LENOX D. BAKER,
ALSTON CALLAHAM,
Committee.

The Committee on Scientific Awards consists each year of five Association members, one from the Section on Medicine, one from the Section on Surgery, one from the Section on Pathology, and the other two to be selected from other Sections. One member of the Committee is to be a member of the Council and is to be Chairman of the Committee. The Committee is appointed by the Chairman of the Council.

GOLF TOURNAMENT

Dr. Arthur H. Weiland, Miami, Chairman of Golf Committee, makes the following report for his Committee:

The Twenty-Third Annual Golf Tournament for physicians of Southern Medical Association was held in Miami, Florida, at the Miami Shores Country Club on Monday, Tuesday and Wednesday, November 4-6, 1946. Seventy-nine physicians participated in the tournament.

Dr. H. King Wade, Hot Springs National Park, Arkansas, with a score of 85, won low gross in the senior class, physicians 50 or over. In addition to receiving the Ralston Purina Cup, the major trophy for this event, he received a set of matched woods.

Dr. E. Malcolm Stokes, Tulsa, Oklahoma, with a score of 79, won the low gross, junior class, physicians under 50. In addition to receiving the *Oklahoman and Times Cup*, the major trophy for this event, he received a golf bag.

Dr. David B. Morgan, Kansas City, Missouri, with a score of 84, was the runner-up in low gross, all ages. In addition to receiving the Schwarzchild Cup, the major trophy for this event, he received a set of woods.

Dr. Julian A. Rickles, Miami, Florida, with a score of 68, won the handicap for low net. In addition to the *Dallas Morning News* Cup, the major trophy for this event, he received a Burdick infra-red heat lamp.

In addition to the above awards, there were numerous other excellent prizes of useful merchandise which were awarded to approximately fifty other players.

The *Oklahoman and Times* Cup, the *Dallas Morning News* Cup, the Schwarzschild Cup and the Ralston Purina Cup must be won three times by the same golfer to become the permanent possession of a contestant. In so far as none of the trophies have been won three times, they will all be in play next year.

(Signed) ARTHUR H. WEILAND, *Chairman.*

WOMEN PHYSICIANS

The Thirty-Second Annual Meeting and Dinner for Women Physicians of the Southern Medical Association was held at Miami, Florida, Tuesday, November 5, 7:00 p.m., at Roney Plaza Hotel, Miami Beach. Dr. Ruth G. Aleman, New Orleans, Louisiana, Chairman of Women Physicians of the Southern Medical Association, presided. There were thirty-six in attendance, thirty-two of whom were medical women.

Dr. Carita Doggett Corse (Ph.D.), Jacksonville, Florida, gave the address of the evening, her subject being "History and Romance of Early Florida."

Dr. Estelle A. Megiera, Jackson, Mississippi, was elected Chairman and Dr. Emily Gardner, Richmond, Virginia, was elected Vice-Chairman.

The Women Physicians of the Southern Medical Association were given a tea by Dr. Maryland Byrne, Miami Beach, Sunday afternoon, November 3, and there was a luncheon at the Colonial Hotel, Miami, Monday noon, November 4.

Dr. Iva C. Youmans, Miami, was Chairman of the Committee for Women Physicians and associated with her were Dr. Laura Hobbs Bourne, Dr. Louise DeVore, Dr. Bessie French and Dr. Ruth W. Rumsey, Miami, and Dr. Lucille J. Marsh, Jacksonville.

ENTERTAINMENT

A Reception and Ball at the Coral Gables Country Club on Wednesday evening, November 6, was the one permitted official entertainment feature for physicians and ladies attending the Southern Medical Association meeting at Miami, a joint activity of the Dade County Medical Association and the Woman's Auxiliary to the Dade County Medical Association. This was a very splendid entertainment feature and was greatly enjoyed and appreciated by the physicians and their ladies as evidenced by the large number who attended.

REGISTRATION

Miami Meeting, Southern Medical Association
November 4-7, 1946

	Number Physicians	Number Ladies Accompanying Physicians
Alabama	122	81
Arkansas	42	33
District of Columbia	49	23
Florida (outside Dade County)	282	135
Dade County (Miami, Etc.)	443	—
Georgia	135	82
Kentucky	75	65
Louisiana	62	35
Maryland	26	15
Mississippi	41	37
Missouri	80	54
North Carolina	129	76
Oklahoma	33	27
South Carolina	83	43
Tennessee	122	89
Texas	79	66
Virginia	94	56
West Virginia	29	25
Other States and Foreign	165	71
Total Physicians	2091	1023
Tropical Medicine and Malaria (not physicians)	47	8
Sanitary Engineers	18	4
Nurses	26	—
Nurses (Miami)	44	—
Technical Exhibitors	241	—
Miscellaneous	28	—
Miscellaneous (Miami)	11	—
	2506	1035
Ladies	1035	
Grand Total	3541	

These figures are compiled from the card registration. In a meeting like the Southern Medical Association where there is no registration fee and a badge is not necessary for gaining admission to meetings and exhibits, there are always a number of physicians attending who neglect to register. The number attending such meetings who fail to register is estimated at from three to ten per cent of the total registration. It is believed that at least five per cent of the physicians who attended the Miami meeting did fail to register, and if this be true, an additional 104 physicians should be added to the 2,091 who did register, making the actual attendance apparently at least 2,195 physicians with a grand total of 3,645.

AFTER MIAMI, HAVANA AND/OR NASSAU

HAVANA

After the Miami meeting there was an official Southern Medical Association tour to Havana, leaving Miami via Pan American Airways, Friday forenoon, November 8. The Sevilla Biltmore Hotel in Havana was headquarters for the tour. There was a city trip Friday afternoon, seeing Havana by day, and a night trip that evening, seeing Havana by night, visiting a sidewalk cafe, attending a Jai Alai game, and visiting several distinctive night clubs. Saturday forenoon a visit was made to historic Morro Castle

and Cabana Fortress, going by automobile and returning by boat with boat ride around Havana Bay and landing near Templete Restaurant on the water front where a typical Cuban lunch was served in a sidewalk dining pavillion.

The Colegio Medico Nacional de Cuba (National Medical Association of Cuba) and the Colegio Medico de la Habana (Medical Association of Havana) tendered a reception to the visiting physicians and their ladies at their headquarters, 61 Malecon Drive, 5:00 to 7:00 p.m. Saturday. There were a large number of Havana physicians and their ladies to welcome the visitors. It was a nice occasion, and attended by practically all of the physicians and ladies on the tour, a much appreciated courtesy.

On Saturday evening a banquet was had on the Sevilla Biltmore Hotel Roof with music and typical Cuban entertainment, the Southern Medical Association being host to a large number of distinguished physicians of Havana and their wives at this banquet.

On Sunday there was a trip into the country, going to the typical village of Marial, where lunch was held at a typical Cuban inland restaurant. The Naval Academy, the Annapolis of Cuba, is located at Marial and was visited by the tour group. In the evening the group went to Tropicana for dinner and floor show, this being one of the lovely night spots of Havana.

Monday was a free day, the group being on its own. The tour ended with the return to Miami Tuesday forenoon via Pan American Airways. There were 171 on the tour. The Havana tour was under the direction of Mr. C. P. Loranz, Secretary-Manager, Southern Medical Association, Birmingham, Alabama, assisted in Miami and Havana by Mr. Alfred Canel, Miami, and in Havana also by Mr. Jose B. Guzman, Havana.

NASSAU

After the Miami meeting there were two official tours to Nassau, one group of forty leaving Miami, Friday, November 8, and another group of thirty leaving Miami, Tuesday, November 12, both via Pan American Airways. The Royal Victoria Hotel in Nassau, was headquarters for both groups. There was a sightseeing trip, seeing Nassau, the first afternoon, with refreshments on the terrace in the evening followed by dinner-dance at the Royal Victoria Hotel, to which the United States Vice Consul and his wife and several Nassau physicians and their wives were guests of the Association. The next forenoon was free. Both groups were taken across Nassau Bay to Paradise Beach on the second day where a picnic lunch was served at noon, prepared by the Royal Victoria Hotel. Following lunch many went in bathing at the beautiful Paradise Beach. Returning, a boat ride was had around Hog Island and visiting the marine gardens which could be seen through the glass bottom boat.

On the second evening from 5:30 to 7:00 o'clock both groups were tendered a reception by Mr. Raymond E. Kolb, United States Vice Consul for the Bahamas at Nassau and Mrs. Kolb at their lovely home. In addition to those on the tour, there were present members of the local medical profession and prominent citizens of Nassau. These receptions were delightful occasions, greatly enjoyed by all, a much appreciated courtesy. After the reception those on the tour had dinner at the Cumberland House and then a visit to the Spider Web Club, Nassau's principal night spot, where there was typical entertainment.

The next forenoon was free. The tours ended with the return to Miami, leaving Nassau around noon via Pan American Airways, and arriving back in Miami in the early afternoon.

The Nassau tours were under the direction of Mr. C. P. Loranz, Secretary-Manager, Southern Medical Association, Birmingham, Alabama, assisted in Miami by Mr. Alfred Canel, Miami. Mrs. S. C. Riggan, Secretary to Mr. Loranz, Birmingham, Alabama, was in charge of the first group assisted by Mr. Gaston Diaz, Miami, and Mr. Loranz was in charge of the second group, assisted by Mr. Victor G. Canel, Miami. Mr. Diaz and Mr. Victor Canel are associated with Mr. Alfred Canel.

HOBBY EXHIBITS

Miami Auditorium

The Association had its seventh Hobby Exhibit in connection with the Miami meeting. Here are the names of the physicians who exhibited some of their hobby work:

Walter C. Jones, Miami, Fla.: Orchids—Seedlings and Blooms.

Lassar Alexander, Miami, Fla.: Antique Firearms—Pistols and Long Guns.

A. W. Wood, Miami, Fla.: Small Articles from Florida Hardwood.

L. A. Hodsdon, Miami, Fla.: Florida Gophers.

Lucien Y. Dyrenforth, Jacksonville, Fla.: Auto License Plates—All States, Territories, and Canadian Provinces.

F. M. Grogan, St. Louis, Mo.: Paintings in Oil.

Charlie Mabry, Jacksonville, Fla.: Paintings in Oil and Water Color.

Sidney W. Scorse, Joplin, Mo.: Paintings in Water Color.

Julius Alexander, Miami, Fla.: Photographs.

Carrol C. Turner, Memphis, Tenn.: Photographs.

Leslie H. French, Washington, D. C.: Photographs.

J. O. Fitzgerald, Jr., Richmond, Va.: Photographs.

SCIENTIFIC AND TECHNICAL EXHIBITS

The Scientific and Technical Exhibits in connection with the fortieth annual meeting of the Southern Medical Association were all placed at the Miami Auditorium, Miami, Florida. The exhibits were open on Monday, November 4 from 12:00 noon until 5:30 p.m., and on Tuesday, Wednesday and Thursday, November 5-7, from 8:30 a.m. until 5:30 p.m.

There were thirty-eight (38) Scientific Exhibits representing all phases of medicine and surgery, many of them being original research work. Scientific exhibits were conveniently placed and arranged so that they could be easily seen and studied. See complete list of Scientific Exhibits below.

In the Technical Exhibits there were sixty-four (64) business firms with a total of eighty-three (83) exhibit spaces, utilizing all the space that could be made available for Technical Exhibits. See page 114 for complete list of business firms exhibiting.

SCIENTIFIC EXHIBITS

Miami Auditorium

The following were the Scientific Exhibits at the Miami meeting:

West Side of Exhibit Hall

U. S. Army, Office of the Surgeon General, Washington, D. C.: Recent Advances in Military Medicine and Surgery.

U. S. Public Health Service, Tuberculosis Control Division, Washington, D. C.: Routine Admission Chest X-Ray in General Hospitals.

U. S. Public Health Service, Office of Dermatology, Industrial Hygiene Division, Louis Schwartz, Medical Director, Samuel M. Peck, Medical Director (R), Isidore Botvinick, Surgeon (R), and A. L. Leibovitz, Passed Assistant Surgeon (R), Bethesda, Md.: Control of Epidemic Ringworm of the Scalp.

Norman H. Topping, Richard G. Henderson (deceased) and Ida A. Bengtson, National Institute of Health, U. S. Public Health Service, Bethesda, Md.: Typhus Vaccine.

On Stage in Exhibit Hall

Hugh J. Morgan and John S. Hunt, Vanderbilt University School of Medicine, Nashville, Tenn., and J. Mallory Carlisle and L. R. Kent, Medical Department, Merck and Company, Rahway, N. J.: Streptomycin.

Virginia Howard, Director, Division of Maternal and Child Health, Mississippi State Board of Health, Jackson, Miss.: The Mississippi Emergency Maternity and Infant Care Program: A Statistical Study.

Grace A. Goldsmith, Tulane University School of Medicine, New Orleans, La.: Treatment of Macrocytic Anemia with Pteroylglutamic Acid (Folic Acid).

American Medical Association, Thomas G. Hull, Director, Scientific Exhibit, Chicago, Ill.: Trichinosis.

Tom D. Spies, University of Cincinnati School of Medicine, Cincinnati, Ohio, and Nutrition Clinic, Jefferson-Hillman Hospital, Birmingham, Ala., and Guillermo Garcia Lopez, Jose Aristides Menendez and Reuben Lopez Toca, University of Havana School of Medicine, Havana, Cuba: Folic Acid Therapy.

East Side, of Exhibit Hall

John Adriani and David A. Davis, Louisiana State University School of Medicine and Charity Hospital, New Orleans, La.: Physiology of Spinal Anesthesia.

David Woolfolk Barrow, Lexington, Ky.: Varicose Veins and Leg Ulcers.

Harry E. Bacon and Lowrain E. McCrea, Temple University School of Medicine, Philadelphia, Pa.: Surgical Treatment of Rectal Cancer and Management of Associated Vesical Dysfunction.

Wm. Milton Adams, Memphis, Tenn.: Mammary Plasty with Free Transplantation of the Nipples.

Neal Owens, Tulane University School of Medicine, New Orleans, La.: Plastic Surgery.

Herbert S. Kupperman and Robert B. Greenblatt, University of Georgia School of Medicine, Augusta, Ga.: The Two-Hour Pregnancy Test.

Ben F. Wyman, State Health Officer, and Robert E. Seibels, Consulting Obstetrician, State Board of Health, Columbia, S. C.: Simple Contraceptives: Their Acceptability and Effectiveness.

Robert E. Seibels, The Bob Seibels Jr. Memorial Laboratory, Columbia, S. C.; Ernest Ayre, Royal Victoria Hospital, Montreal, Canada; and Clair Folsome, Ortho Research Foundation, Linden, N. J.: Diagnosis of Uterine Cancer by the Stained Vaginal Spread.

Daniel C. Elkin and Frederick W. Cooper, Jr., Emory University School of Medicine, Emory University, Ga.: Vascular Surgery.

Front Corridor

K. S. Grimson, G. J. Baylin, H. M. Taylor, F. H. Hesser, R. W. Rundles and R. C. Smith, Duke University School of Medicine, Durham, N. C.: Vagotomy for Peptic Ulcer.

J. Elliott Scarborough and Robert L. Brown, Emory University School of Medicine, Emory University, Ga.: Breast Tumors.

A. Keller Doss, Fort Worth, Tex.: Translumbar Aortography.

Monroe Wolf, O. P. Daly, Sister Clarise, (Mr.) R. Ramselli, (Mr.) P. Desporte and (Mr.) R. Thibodeaux, Charity Hospital, New Orleans, La.: Perfect Body Supports for Renal Surgery.

American Board of Orthopaedic Surgery and Joint Committee on Graduate Education, Los Angeles, Calif.: Orthopaedic Information.

Cecil O. Patterson, Milford O. Rouse and John S. Bagwell, Southwestern Medical College, Dallas, Tex.: The Injection Treatment of Esophageal Varices.

Hamilton H. Anderson, Herbert G. Johnstone and Eder L. Hansen, University of California Medical School, San Francisco, Calif.: Chemotherapy of Experimental Amebiasis (Including Pathology and Protozoology of the Disease).

A. R. Hollender, Miami Beach, Fla.: The Nasopharynx: Anatomic, Pathologic and Clinical Aspects.

Amos Christie and J. Cyril Peterson, Vanderbilt University School of Medicine, Nashville, Tenn.: Pulmonary Calcifications and Histoplasmin Sensitivity.

George Burch and Thorpe Ray, Tulane University School of Medicine, New Orleans, La.: Plethysmography in Practice.

Tennessee Valley Authority, Health and Safety Department, E. L. Bishop, Director of Health, Chattanooga, Tenn.: Malaria Control Program.

Registry of Medical Technologists, American Society of Clinical Pathologists, Muncie, Ind.: Registry of Medical Technologists.

Around Patio

Sheppard and Enoch Pratt Hospital, Occupational Therapy Department, Towson, Md.: Occupational and Recreational Therapy in a Psychiatric Hospital.

Jacob Joseph Weinstein, George Washington University School of Medicine and Gallinger Municipal Hospital, Washington, D. C.: Protein Metabolism and Parenteral Protein Hydrolysate in Surgery.

Baruch Committee on Physical Medicine, New York, N. Y.: (1) Recent Developments in Physical Medicine, (2) Education in Physical Medicine, (3) A Community Rehabilitation Service and Center.

Ralph Bowen and George J. Seibold, Houston, Tex.; Herbert J. Rinkel, Kansas City, Mo.; and Bernard G. Efron, New Orleans, La.: Hay Fever Problems, Southern and Coastal Areas.

American Hearing Society (Formerly American Society for the Hard of Hearing), Washington, D. C.: (1) Prevention of Deafness, (2) Conservation of Hearing, and (3) Rehabilitation of the Hard of Hearing.

George M. Haik, Louisiana State University School of Medicine, New Orleans, La.: Intra-ocular Foreign Bodies—Accurate Localization.

J. Brown Farrior, Tulane University School of Medicine, New Orleans, La.: Ear Surgery.

Karl John Karnaky, Baylor University College of Medicine, Houston, Tex.: Gynecological Anatomy: Normal and Abnormal.

MOTION PICTURES

Miami Auditorium

As part of the Miami meeting there were motion pictures running continuously on Tuesday, Wednesday and Thursday, November 5-7 from 8:30 a.m. to 5:30 p.m.

Three times each day at specified times there was a request period, at which time any film on the regular program or any film approved by the management could be run provided it did not interfere with the regular program.

Forenoons

"Routine Admission Chest X-Ray in General Hospitals" (20 minutes—9:00 a.m.), United States Public Health Service, Tuberculosis Control Division, Washington, D. C.

"The Use of Sulfathalidine (Phthalylsulfathiazole) in Chronic Ulcerative Colitis" (15 minutes—9:21 a.m.), Michael H. Streicher, University of Illinois College of Medicine, Chicago, Ill.

"Effect of Drugs on the Heart" (22 minutes—9:37 a.m.), R. P. Walton, O. J. Brodie and M. Belkin, Medical College of the State of South Carolina, Charleston, S. C.

"Folic Acid Therapy" (30 minutes—10:00 a.m.), Tom D. Spies, University of Cincinnati School of Medicine, Cincinnati, Ohio, and Nutrition Clinic, Jefferson-Hillman Hospital, Birmingham, Ala., and Guillermo Garcia Lopez, Jose Aristides Menendez and Reuben Lopez Toca, University of Havana School of Medicine, Havana, Cuba.

"Schistosomiasis" (20 minutes—10:31 a.m.), United States Army, Office of the Surgeon General, Washington, D. C.

"The Experimental Transmission of Malaria" (23 minutes—10:52 a.m.), United States Public Health Service, the Communicable Disease Center, Atlanta, Ga.

"The Preparation and Staining of Blood Films" (16 minutes—11:15 a.m.), United States Public Health Service, The Communicable Disease Center, Atlanta, Ga.

"Surgery in Hypertension" (10 minutes—11:32 a.m.), Emil J. C. Hildenbrand, Georgetown University School of Medicine, Washington, D. C.

"Conization of Cervix: A Twelve-Year Study" (23 minutes—11:43 a.m.), Karl John Karnaky, Baylor University College of Medicine, Houston, Tex.

Afternoons

"Below Knee Amputation" (14 minutes—2:00 p.m.), United States Army, Office of the Surgeon General, Washington, D. C.

"The Treatment of Simple Long Oblique and Simple Spiral Fractures of the Shaft of the Tibia" (20 minutes—2:15 p.m.), Lyon K. Loomis, Louisiana State University School of Medicine, New Orleans, La.

"Analysis of Muscle Function in Poliomyelitis" (18 minutes—2:36 p.m.), Guy A. Caldwell and Donald T. Imrie, Tulane University School of Medicine, New Orleans, La.

"Abdomino-perineal Proctosigmoidectomy without Colostomy and with Preservation of Sphincter Muscles" (30 minutes—2:55 p.m.), Harry E. Bacon, Temple Univevrsity School of Medicine, Philadelphia, Pa.

"Correction of Complete Facial Paralysis" (30 minutes—3:26 p.m.), Wm. Milton Adams, Memphis, Tenn.

"Saddle Block Anesthesia in Obstetrics Using Nupercaine" (20 minutes—3:57 p.m.), John Adriani and Ray T. Parmley, Charity Hospital, New Orleans, La.

"Radical Orchidectomy" (15 minutes—4:18 p.m.), United States Army, Office of the Surgeon General, Washington, D. C.

"Translumbar Aortography" (8 minutes—4:34 p.m.), A. Keller Doss, Fort Worth, Tex.

"Bronchoscopy: Diagnosis and Treatment" (25 minutes—4:43 p.m.), Nathaniel M. Levin, Miami, Fla.

GENERAL CLINICAL SESSION

MIAMI DAY

Monday, November 4, 2:00 p.m.

A Clinical Session, SURGERY, was held at the First Christian Church, Harriat Hall, Miami, Dr. John W. Snyder, Miami, presiding.

The following presentations were made:

Dr. Robert M. Rose, Miami: "Relief of Upper Extremity Pain by Stellate Block" (Lantern Slides).

Dr. W. Tracy Haverfield, Miami: "Signs and Symptoms that Suggest Serious Lesions of the Nervous System."

Dr. John Elliott (Sc.D.), Miami: "The Significance of the Rh Factor" (Lantern Slides).

Dr. Nathaniel M. Levin, Miami: "Bronchoscopy: Diagnosis and Treatment" (Lantern Slides).

Dr. C. Larimore Perry, Miami: "The Catgut Closure of the Low Midline Incision and Early Ambulation."

Dr. James J. Nugent, Miami: "Experience in the Extraction of Ureteral Calculi with a Balkus Looped Catheter" (Lantern Slides).

Dr. Martin Mangels, Jr., Miami; and Dr. Charles A. Robinson, Delray Beach, Florida: "Modification of the Nicola Operation for Correction of Recurring Anterior Dislocations of the Shoulder" (Lantern Slides).

Dr. Julian A. Rickles, Miami: "Bronchiectasis: A Neglected Disease" (Lantern Slides).

The Session then adjourned *sine die*.

GENERAL CLINICAL SESSION

MIAMI DAY

Tuesday, November 5, 9:00 a. m.

A Clinical Session, SURGERY, was held at the First Christian Church, Harriat Hall, Miami, Dr. Thomas O. Otto, Miami, presiding.

The following presentations were made:

Dr. Roger J. Forastiere, Dr. H. Colquitt Pearson and Dr. Ralph S. Sappenfield, Miami: "Some Effects of Posture on Patients During and After Operation."

Dr. Harrison A. Walker, Miami: "Cysts of the Pancreas: Surgical Aspects" (X-Ray Films).

Dr. Claude G. Mentzer, Miami: "Evaluation of Oil Soluble Anesthetics in Proctologic Surgery."

Dr. Cayetano Panettiere, Miami Beach: "The Present Status of Endocervicitis."

Dr. Henry H. Caffee, Coral Gables: "Observations on Rupture of the Uterus."

Dr. Richard Marion Fleming, Miami: "Uncommon Surgical Causes of Right Lower Quadrant Abdominal Pain."

Dr. Homer L. Pearson, Jr., Miami: "Multiple Carcinomas of the Uterus" (Lantern Slides).

Dr. Herbert W. Virgin, Jr., Miami: "A Review of 200 Knee Injuries: Diagnostic Aspects."

The Session then adjourned *sine die*.

GENERAL CLINICAL SESSION

MIAMI DAY

Monday, November 4, 2:00 p.m.

A Clinical Session, MEDICINE, was held at the Miami Auditorium, Miami, Dr. S. Marion Salley, Miami, presiding.

The following presentations were made:

Dr. A. B. Litterer, Miami: "Biologic False Positive Serologic Reactions for Syphilis."

Dr. Milton M. Coplan, Dr. Frank M. Woods and Dr. Perry D. Melvin, Miami: "Urologic Diagnosis from X-Ray Studies: A Review of Interest to General Practitioners" (Lantern Slides).

Dr. Emil M. Isberg, Miami Beach: "The Role of Surgical Treatment in the Management of Hypertension."

Dr. Benjamin G. Oren, Miami: "Diverticulosis Coli and Co-existing Carcinoma of the Sigmoid: Report of Two Cases" (Lantern Slides).

Dr. A. R. Hollender, Miami Beach: "Some Commonly Unrecognized Diseases of the Nasopharynx: Results of Studies of 140 Autopsy Specimens."

Dr. S. Charles Werblow, Miami Beach: "The Value of the Electrocardiogram in the Diagnosis of Early Rheumatic Heart Disease."

Dr. David A. Nathan, Miami Beach: "The Early Recognition of Pericarditis" (Lantern Slides).

Dr. Arthur H. Welland, Dr. Charles R. Burbacher and Dr. Robert P. Keiser, Coral Gables: "The Management of Bulbar Poliomyelitis."

The Session then adjourned *sine die*.

GENERAL CLINICAL SESSION

MIAMI DAY

Tuesday, November 5, 9:00 a.m.

A Clinical Session, MEDICINE, was held at the Miami Auditorium, Miami, Dr. Robert M. Harris, Miami, presiding.

The following presentations were made:

Dr. Nicholas A. Tierney, Miami: "The Effect of Para-Aminobenzoic Acid on Rickettsial Diseases" (Lantern Slides).

Dr. Alfred G. Levin, Miami: "Factors Influencing Curability of Cancer."

Dr. M. Jay Flipse and Dr. M. Eugene Flipse, Miami: "Observations in the Treatment of Hypertension with Rice Fruit Diet."

Dr. P. R. Rezek, Miami: "Relation Between Graves' Disease and Liver Pathology and Their Importance in the Use of Thiouracil" (Lantern Slides).

Dr. Carkos P. Lamar, Miami: "Diabetes Mellitus: Practical Management of Ambulatory Patients" (Lantern Slides).

Dr. Gerard Raap and Dr. Frazier J. Payton, Miami: "Leprosy, Ainhum, and Leontiasis Ossium."

Dr. Franz H. Stewart, Miami: "Malaria: Practical Aspects in Management."

Dr. E. Sterling Nichol and Dr. David W. Fassett, Miami: "An Attempt to Forestall Acute Coronary Thrombosis: Preliminary Note on the Continuous Use of Dicumarol" (Lantern Slides).

The Session then adjourned *sine die*.

SECTION ON GENERAL PRACTICE

Officers

Chairman—Dr. C. W. C. Moore, Talladega, Alabama.
Vice-Chairman—Dr. Roy I. Millard, Russellville, Arkansas.
Secretary—Dr. John R. Bender, Winston-Salem, North Carolina.

Tuesday, November 5, 2:00 p.m.

The Section met in the Miami Auditorium, Miami, Florida, and was called to order by the Secretary, Dr. John R. Bender, who presided at the request of the Chairman, Dr. C. W. C. Moore, who was present but elected not to actively preside due to a recent illness. The Address of the Chairman, entitled "The Left Shift in Medical Practice," was read for Dr. Moore by Dr. Bender.

The Chairman appointed the following Nominating Committee: Dr. B. A. Hopkins, Chairman, Stuart, Virginia; Dr. W. L. Pressly, Due West, South Carolina; and Dr. Allen H. Bunce, Atlanta, Georgia.

Dr. M. Pinson Neal, Professor of Pathology, University of Missouri School of Medicine, Columbia, Missouri, read a paper entitled "Diagnoses Commonly Missed in General Practice" (Lantern Slides), which was discussed by Dr. Monroe Wolf, New Orleans, Louisiana; and in closing by the essayist.

Dr. G. A. Hart, Dallas, Texas, read a paper entitled "The General Practitioner, the Specialist, and Ethics."

Dr. Tom D. Spies, Associate Professor of Medicine, University of Cincinnati School of Medicine, Cincinnati, Ohio, and Nutrition Clinic, Jefferson-Hillman Hospital, Birmingham, Alabama, read a paper entitled "Nutritional Deficiencies" (Lantern Slides), which was discussed by Dr. William H. Sebrell, Jr., Bethesda, Maryland; and in closing by the essayist.

Dr. Lee E. Sutton, Jr., Professor of Pediatrics, Medical College of Virginia, Richmond, Virginia, read a paper entitled "Poliomyelitis: The Physician's Approach" (Lantern Slides), which was discussed by Dr. A. A. Herold, Shreveport, Louisiana; Dr. P. L. Dodge, Miami, Florida; Dr. Fuad Hanna, Miami, Florida; Dr. Maryland Byrne, Miami Beach, Florida; and in closing by the essayist.

Paper by Dr. Jerry K. Aikawa, Dr. Charles M. Gillikin, Dr. E. Garland Herndon and Dr. George T. Harrell, Bowman Gray School of Medicine, Wake Forest College, Winston-Salem, North Carolina, entitled "Simple Laboratory Aids for the Control of Streptomycin in Therapy in General Practice" (Lantern Slides), was read by Dr. Harrell, and was discussed by Dr. Paul B. Beeson, Atlanta, Georgia; and in closing by Dr. Gillikin and Dr. Herndon.

Dr. Harold N. Perelson, Jefferson-Hillman Hospital, Birmingham, Alabama, read a paper entitled "Occipital Nerve Tenderness: A Sign of Headache," which was discussed by Dr. P. L. Dodge, Miami, Florida; and in closing by the essayist.

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. John R. Bender, Winston-Salem, North Carolina.
Vice Chairman—Dr. J. T. Shelburne, Critz, Virginia.
Secretary—Dr. Shockley D. Gardner, Poteet, Texas.

A vote of appreciation was extended to the Miami hosts.

The Section then adjourned *sine die*.

SECTION ON MEDICINE

Officers

Chairman—Dr. William H. Kelley, Charleston, South Carolina.
Vice-Chairman—Dr. Arthur J. Schwertman, Covington, Kentucky.
Secretary—Dr. William M. Nicholson, Durham, North Carolina.

Thursday, November 7, 9:00 a.m.

The Section met in the Miami Auditorium, Miami, Florida, and was called to order by the Chairman, Dr. William H. Kelley, Department of Medicine, Medical College of the State of South Carolina, Charleston, South Carolina, who read his Chairman's Address entitled "Portal Cirrhosis in the Obese."

The Chairman appointed the following Nominating Committee: Dr. T. Dewey Davis, Chairman, Richmond, Virginia; Dr. Seale Harris, Birmingham, Alabama; and Dr. Edgar Hull, New Orleans, Louisiana.

Paper by Dr. J. W. Beard, Dr. I. W. McLean, Jr., and Dr. Dorothy Beard, Department of Experimental Surgery, Duke University School of Medicine, Durham, North Carolina, entitled "Protective Value of Influenza Vaccine Assayed in Swine" (Lantern Slides), was read by Dr. J. W. Beard.

Dr. Thomas Findley, New Orleans, Louisiana, read a paper entitled "The Role of Neurosurgery in the Treatment of Hypertension" (Lantern Slides), which was discussed by Dr. Rawley M. Penick, Jr., New Orleans, Louisiana; Dr. Keith S. Grimson, Durham, North Carolina; Dr. Seale Harris, Birmingham, Alabama; and in closing by the essayist.

Paper by Dr. Roy S. Bigham, Jr., Charlotte, North Carolina; Dr. Robert E. Mason and Dr. John Eager Howard, Johns Hopkins Hospital and Johns Hopkins University School of Medicine, Baltimore, Maryland, entitled "Total Intravenous Alimentation: Its Technic and Therapeutic Indications" (Lantern Slides), was read by Dr. Bigham, and was discussed by Dr. William M. Nicholson, Durham, North Carolina; Dr. John B. Youmans, Nashville, Tennessee; and in closing by Dr. Bigham.

Dr. O. P. J. Falk, Department of Medicine, St. Louis University School of Medicine, St. Louis, Missouri, read a paper entitled "Current Trends in the Treatment of Coronary Disease: Discussion of Dicumarol Therapy" (Lantern Slides), which was discussed by Dr. E. Sterling Nichol, Miami, Florida; Dr. George W. Calver, Washington, D. C.; and in closing by the essayist.

Dr. Leon S. Smelo, Birmingham, Alabama, read a paper entitled "Lack of Response to Insulin: Report of a Patient Treated with Five Thousand Units Per Twenty-Four Hours" (Lantern Slides), which was discussed by Dr. W. S. Branning, Durham, North Carolina; Dr. Seale Harris, Birmingham, Alabama; Dr. William M. Nicholson, Durham, North Carolina; Dr. A. A. Herold, Shreveport, Louisiana; and in closing by the essayist.

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Arthur J. Schwertman, Covington, Kentucky.
Vice-Chairman—Dr. S. Marion Salley, Miami, Florida.
Secretary—Dr. William M. Nicholson, Durham, North Carolina.

A vote of appreciation was extended to the Miami hosts.

The Section then adjourned *sine die*.

SECTION ON GASTROENTEROLOGY

Officers

Chairman—Dr. John Tilden Howard, Baltimore, Maryland.
Vice-Chairman—Dr. Gordon McHardy, New Orleans, Louisiana.
Secretary—Dr. Cecil O. Patterson, Dallas, Texas.

Thursday, November 7, 2:00 p.m.

The Section met in the Miami Auditorium, Miami, Florida, and was called to order by the Chairman, Dr. John Tilden Howard, Baltimore, Maryland, who presided.

The Chairman appointed the following Nominating Committee: Dr. Charles M. Caravati, Chairman, Richmond, Virginia; Dr. D. A. Marion, Miami, Florida; and Dr. Julian M. Ruffin, Durham, North Carolina.

Paper by Dr. Fernando Milanes, Professor of General Pathology, Dr. Arturo Curbelo, Professor of Bacteriology, Dr. Aureliano Rodriguez, Instructor in General Pathology, Dr. Guillermo Garcia Lopez, Professor of General Pathology, University of Havana School of Medicine, Havana, Cuba, and Dr. Tom D. Spies, Birmingham, Alabama, entitled "Tropical Sprue: Bacteriological and Parasitic Studies of the Intestinal Content" (Lantern Slides), was read by Dr. Milanes, and was discussed by Dr. Grace A. Goldsmith, New Orleans, Louisiana; Dr. Marvin H. Smith, Miami, Florida; and in closing by Dr. Milanes.

Dr. Porter P. Vinson, Richmond, Virginia, read a paper entitled "The Diagnosis and Treatment of Cardiospasm" (Lantern Slides), which was discussed by Dr. James L. Borland, Jacksonville, Florida; Dr. Gordon McHardy, New Orleans, Louisiana; and in closing by the essayist.

Dr. John Tilden Howard, Baltimore, Maryland, read his Chairman's Address, entitled "Adventures in the Esophagus" (Lantern Slides).

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Cecil O. Patterson, Dallas, Texas.
Vice-Chairman—Dr. Walter R. Johnson, Asheville, North Carolina.
Secretary—Dr. James L. Borland, Jacksonville, Florida.

It was moved and carried that the Section have a luncheon or dinner at the next annual meeting, if it can be arranged satisfactorily.

Dr. Carl Moyer, Department of Surgery, Southwestern Medical College, Dallas, Texas, read a paper entitled "The Volume and Composition of Parenteral Fluids and Clinical Problems of Body Fluid Equilibrium" (Lantern Slides), which was discussed by Dr. George R. Meneely, Nashville, Tennessee; Dr. R. R. Overman, Memphis, Tennessee; and in closing by the essayist.

Dr. Joseph W. Larimore, St. Louis, Missouri, read a paper entitled "Peptic Ulcer: Diagnosis and Treatment," which was discussed by Dr. Edgar M. Dunstan, Atlanta, Georgia; and Dr. Marvin H. Smith, Miami, Florida.

Paper by Dr. Cathcart Smith, Dr. Julian M. Ruffin and Dr. George J. Baylin, Duke University School of Medicine, Durham, North Carolina, entitled "The Effect of Transthoracic Vagus Resection Upon Patients with Peptic Ulcer" (Lantern Slides), was read by Dr. Smith, and was discussed by Dr. Osler A. Abbott, Atlanta, Georgia; Dr. John Tilden Howard, Baltimore, Maryland; and in closing by Dr. Ruffin.

The Section then adjourned *sine die*.

SECTION ON NEUROLOGY AND PSYCHIATRY

Officers

Chairman—Dr. Jas. Asa Shield, Richmond, Virginia.
Vice-Chairman—Dr. Titus H. Harris, Galveston, Texas.
Secretary—Dr. Hervey M. Cleckley, Augusta, Georgia.

Thursday, November 7, 2:00 p.m.

The Section met in the First Christian Church, Christian Endeavor Room, Miami, Florida, and was called to order by the Chairman, Dr. Jas. Asa Shield, Richmond, Virginia, who presided.

The Chairman appointed the following Nominating Committee: Dr. Frank H. Redwood, Chairman, Norfolk, Virginia; Dr. Lawrence F. Woolley, Atlanta, Georgia; and Dr. Edward H. Williams, Miami, Florida.

Dr. Olin B. Chamberlain, Professor of Neuropsychiatry, Medical College of the State of South Carolina, Charleston, South Carolina, read a paper entitled "Certain Biological and Sociological Factors in Involutional States," which was discussed by Dr. Howard R. Masters, Richmond, Virginia; and in closing by the essayist.

Paper by Dr. T. S. Hill, Chief of Division of Neurology and Psychiatry, Dr. R. R. Overman, Assistant Professor of Physiology, and Dr. Hudson Jost, Assistant Professor of Psychiatry, University of Tennessee College of Medicine, Memphis, Tennessee, entitled "Premenstrual Tension: Preliminary Report on Studies of Ionic Balance, Hormone Levels, Alterations in Physiological Functioning, in Relation to Mental States" (Lantern Slides), was read by Dr. Hill, and was discussed by Dr. Herbert S. Kupperman, Augusta, Georgia; Dr. Herman Selinsky, Miami, Florida; Dr. Lawrence F. Woolley, Atlanta, Georgia; and in closing by Dr. Hill.

Dr. Jas. Asa Shield, Richmond, Virginia, read his Chairman's Address, entitled "Farm Practices Influencing the Incidence of Multiple Sclerosis."

Dr. Jose Angel Bustamante, Instructor in Neurology and Psychiatry, University of Havana School of Medicine, Havana, Cuba, read a paper entitled "Statistical Comparative Study on Mental Diseases Between Cuba and the United States of America," which was discussed by Dr. T. S. Hill, Memphis, Tennessee.

Paper by Dr. James S. New and Dr. Alex R. Kelly, Jr., University of Georgia School of Medicine, Augusta, Georgia, entitled "Narcosynthesis in Civilian Practice," was read by Dr. New, and was discussed by Dr. Maurice H. Greenhill, Durham, North Carolina; and in closing by Dr. Kelly and Dr. New.

Dr. Erwin W. Straus, Director of Clinical Psychiatry, U. S. Veterans Hospital, Lexington, Kentucky, read a paper entitled "Disorders in Personal Time in Depressive States," which was discussed by Dr. Lawrence F. Woolley, Atlanta, Georgia; Dr. Jose Angel Bustamante, Havana, Cuba; and in closing by the essayist.

Dr. C. H. Denser, Staff Physician, Mississippi State Hospital, Whitfield, Mississippi, read a paper entitled "Convulsive Electric Therapy—Technical Evaluations of a New Series of Three Hundred and Eighty-Seven Cases: Observations and Conclusions," which was discussed by Dr. C. F. Holbrook, New Orleans, Louisiana; Dr. P. L. Dodge, Miami, Florida; and in closing by the essayist.

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Titus H. Harris, Galveston, Texas.
Vice-Chairman—Dr. Hervey M. Cleckley, Augusta, Georgia.
Secretary—Dr. James L. Anderson, Miami, Florida.

A vote of appreciation was extended to the Miami hosts.

The Section then adjourned *sine die*.

SECTION ON PEDIATRICS

Officers

Chairman—Dr. Stewart H. Welch, Birmingham, Alabama.
Vice-Chairman—Dr. Ralph V. Platou, New Orleans, Louisiana.
Secretary—Dr. W. Ambrose, Richmond, Virginia.

Wednesday, November 6, 9:00 a.m.

The Section met in the Miami Auditorium, Miami, Florida, and was called to order by the Vice-Chairman, Dr. Ralph V. Platou, New Orleans, Louisiana, who presided for the Chairman, Dr. Stewart H. Welch, Birmingham, Alabama, absent because of illness.

The Acting Chairman appointed the following Nominating Committee: Dr. Hughes Kennedy, Jr., Chairman, Birmingham, Alabama; Dr. R. E. de la Houssaye, New Orleans, Louisiana; and Dr. Luther W. Holloway, Jacksonville, Florida.

Dr. Samuel F. Ravenel, Greensboro, North Carolina, read a paper entitled "The Treatment of Rocky Mountain Spotted Fever with Para-aminobenzoic Acid: A Comprehensive Plan" (Lantern Slides), which was discussed by Dr. Warren W. Quillian, Miami, Florida; Dr. Arthur H. London, Jr., Durham, North Carolina; Dr. George T. Harrell, Winston-Salem, North Carolina; and in closing by the essayist.

Paper by Dr. Harold Cummins, Professor of Anatomy, and Dr. Ralph V. Platou, Professor of Pediatrics, Tulane University School of Medicine, New Orleans, Louisiana, entitled "Mongolism: An Objective Early Sign" (Lantern Slides), was read by Dr. Platou, and was discussed by Dr. Hughes Kennedy, Jr., Birmingham, Alabama; Dr. J. Buren Sidbury, Wilmington, North Carolina; Dr. Arthur H. London, Jr., Durham, North Carolina; and in closing by Dr. Platou.

Dr. Amos Christie, Professor of Pediatrics, Vanderbilt University School of Medicine, Nashville, Tennessee, read a paper entitled "Recent Advances in Pediatrics" (Lantern Slides), which was discussed by Dr. William F. Burdick, Washington, D. C.; Dr. Allen P. Bloxsom, Houston, Texas; Dr. C. E. Roach, Indianapolis, Indiana; Dr. Margaret Nicholson, Washington, D. C.; and in closing by the essayist.

Paper by Dr. Felix Hurtado, Professor of Pediatrics, University of Havana School of Medicine, and Dr. Arturo J. Aballi, Instructor in Pediatrics, University of Havana School of Medicine, Havana, Cuba, entitled "Some Considerations About the Acute Diarrheas in Infancy and Childhood" (Lantern Slides), was read by Dr. Hurtado, and was discussed by Dr. Council C. Rudolph, St. Petersburg, Florida; Dr. Amos C. Gipson, Gadsden, Alabama;

Dr. George Lister, Miami Beach, Florida; and in closing by Dr. Aballi.

Paper by Dr. Mylnor W. Beach and Dr. B. Owen Ravenel, Department of Pediatrics, Medical College of the State of South Carolina, Charleston, South Carolina entitled "A Discussion of the Common Meningitides and Their Treatment" (Lantern Slides), was read by Dr. Beach, and was discussed by Dr. Francis B. Schley, Columbus, Georgia; and in closing by Dr. Ravenel.

Dr. David Greer, Houston, Texas, read a paper entitled "The Treatment of Acute Primary Atypical Pneumonia, Etiology Unknown" (Lantern Slides), which was discussed by Dr. William Weston, Jr., Columbia, South Carolina; Dr. William W. Waddell, Jr., Charlottesville, Virginia; and in closing by the essayist.

Paper by Dr. Clarence H. Webb, Dr. S. George Wolfe, Dr. R. T. Lucas and Dr. Charles E. Anderson, Jr., Shreveport, Louisiana, entitled "Acute Hepatitis in Children: Clinical Features and Laboratory Tests," was read by Dr. Webb, and was discussed by Dr. Edgar A. Stephens, West Palm Beach, Florida; Dr. Harry M. Gilkey, Kansas City, Missouri; and in closing by Dr. Webb.

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. W. Ambrose McGee, Richmond, Virginia.
Vice-Chairman—Dr. W. W. McKibben, Miami, Florida.
Secretary—Dr. Samuel F. Ravenel, Greensboro, North Carolina.

The Section then adjourned *sine die.*

SECTION ON PATHOLOGY

Officers

Chairman—Dr. Oscar B. Hunter, Washington, D. C.
Vice-Chairman—Dr. Alfred Blumberg, Oteen, North Carolina.
Secretary—Dr. Roger D. Baker, Birmingham, Alabama.

Thursday, November 7, 9:00 a.m.

The Section met in the First Christian Church, Christian Endeavor Room, Miami, Florida, and was called to order by the Chairman, Dr. Oscar B. Hunter, Washington, D. C., who read his Chairman's Address entitled "Clinical Pathology as a Specialty in Medicine," which was discussed by Dr. Russell L. Holman, New Orleans, Louisiana.

The Chairman appointed the following Nominating Committee: Dr. M. Pinson Neal, Chairman, Columbia, Missouri; Dr. Eugene R. Whitmore, Washington, D. C.; and Dr. Douglas H. Sprunt, Memphis, Tennessee.

Dr. John A. Kolmer, Professor of Medicine, Temple University School of Medicine, and Past President, American Society of Clinical Pathologists, Philadelphia, Pennsylvania, read a paper entitled "Laboratory Control in Relation to Penicillin and Streptomycin Therapy" (Lantern Slides), which was discussed by Dr. E. Sterling Nichol, Miami, Florida; Dr. Alfred Golden, Memphis, Tennessee; and Dr. Harrison, Macon, Georgia.

Dr. William H. Riser, Jr., Associate Professor of Clinical Pathology, The Medical College of Alabama, Birmingham, Alabama, read a paper entitled "The Practical Handling of Bacteriology by the Clinical Pathologist," which was discussed by Dr. Louis C. Posey, Birmingham, Alabama; and Dr. Roy R. Kracke, Birmingham, Alabama.

Paper by Dr. Emma Moss, Director, Department of Pathology, Charity Hospital, New Orleans, Louisiana, entitled "The Practical Handling of Bacteriology by the Clinical Pathologist" (Lantern Slides), was read by Dr. Russell L. Holman, Professor of Pathology and Bacteriology, Louisiana State University School of Medicine, New Orleans, Louisiana, in the absence of Dr. Moss, and was discussed by Dr. John A. Kolmer, Philadelphia, Pennsylvania; and Dr. Nelson A. Murray, Jacksonville, Florida.

Dr. Marion Hood, Head of Division of Parasitology, Florida State Board of Health, Jacksonville, Florida, read a paper entitled "The Practical Handling of Parasitological Diagnosis by the Clinical Pathologist" (Lantern Slides), which was discussed by Dr. Justin M. Andrews, Senior Scientist, U. S. Public Health Service, Atlanta, Georgia; Dr. John A. Kolmer, Philadelphia, Pennsylvania; and Dr. Robert E. Fokes, Jr., Montezuma, Georgia.

Mr. E. L. Webb, Serologist, Georgia State Board of Health, Atlanta, Georgia, read a paper entitled "Practical Handling of Serology by the Clinical Pathologist," which was discussed by Dr. Thomas Cajigas, Washington, D. C.; Dr. John A. Kolmer, Philadelphia, Pennsylvania; and Dr. Nelson A. Murray, Jacksonville, Florida.

Dr. Alfred Golden, Assistant Professor of Pathology, University of Tennessee College of Medicine, and Director of Laboratories, Baptist Memorial Hospital, Memphis, Tennessee, read a paper entitled "Surgical Pathology: A Comparison of the Pathologic Anatomy of the Central American Tropical Ulcers and Those of a Variety of Leg Ulcers of North America" (Lantern Slides), which was discussed by Dr. Douglas H. Sprunt, Memphis, Tennessee; Dr. J. E. Ash, Washington, D. C.; Dr. Russell L. Holman, New Orleans, Louisiana; Dr. William N. Lober, Reamstown, Pennsylvania; and Dr. Mass, Macon, Georgia.

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Iva C. Youmans, Miami, Florida.
Vice-Chairman—Dr. A. J. Ayers, Atlanta, Georgia.
Secretary—Dr. Roger D. Baker, Birmingham, Alabama.

The Section then adjourned *sine die.*

SECTION ON RADIOLOGY

Officers

Chairman—Dr. Karl F. Kesmodel, Birmingham, Alabama.
Vice-Chairman—Dr. Paul F. Titterington, St. Louis, Missouri.
Secretary—Dr. J. Marsh Frere, Chattanooga, Tennessee.

Tuesday, November 5, 2:00 p.m.

The Section met in the Elks Club, Miami, Florida, and was called to order by the Chairman, Dr. Karl F. Kesmodel, Birmingham, Alabama, who read his Chairman's Address entitled "Carcinoma of the Breast" (Lantern Slides).

The Chairman appointed the following Nominating Committee: Dr. Vincent W. Archer, Chairman, Charlottesville, Virginia; Dr. J. M. Dell, Jr., Gainesville, Florida; and Dr. H. C. Francis, Nashville, Tennessee.

Paper by Dr. Pedro L. Farinas, Havana, Cuba, entitled "Radiological Considerations of Bronchogenic Cancer at Its Early Stage," was read by Dr. Vincent W. Archer, Charlottesville, Virginia, in the absence of the essayist, and was discussed by Dr. Wilbur Bailey, Los Angeles, California.

Dr. J. M. Dell, Jr., Gainesville, Florida, read a paper entitled "Bronchography" (Lantern Slides), which was discussed by Dr. Gerard Raap, Miami, Florida; Dr. T. H. Lipscomb, Jacksonville, Florida; Dr. H. C. Francis, Nashville, Tennessee; Dr. Julian A. Rickles, Miami, Florida; Dr. Vincent W. Archer, Charlottesville, Virginia; and in closing by the essayist.

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. H. B. Ivey, Goldsboro, North Carolina.
Vice-Chairman—Dr. Gerard Raap, Miami, Florida.
Secretary—Dr. J. Marsh Frere, Chattanooga, Tennessee.

Paper by Dr. George J. Baylin and Dr. Herbert D. Kerman, Duke University School of Medicine, Durham, North Carolina, entitled "Roentgen Examination of the Sphenoid Fissures" (Lantern Slides), was read by Dr. Baylin, and was discussed by Dr. Joseph C. Peden, St. Louis, Missouri.

Paper by Dr. Paul C. Schnoebelen, Dr. H. R. Senturia and Dr. Lawrence Aronberg, St. Louis, Missouri, entitled "Aberrant Ureter: Preoperative Roentgen Diagnosis of Congenital Anomaly" (Lantern Slides), was read by Dr. Schnoebelen, and was discussed by Dr. Frazier J. Payton, Miami, Florida.

Paper by Dr. Ira H. Lockwood, Dr. Arthur B. Smith and Dr. John W. Walker, Kansas City, Missouri, entitled "Irradiation Therapy of Benign Uterine Hemorrhage" (Lantern Slides), was read by Dr. Smith, and was discussed by Dr. John A. Beals, Jacksonville, Florida; Dr. H. C. Chance, Cumberland Gap, Tennessee; Dr. J. M. Dell, Jr., Gainesville, Florida; Dr. Charles M. Gray, Tampa, Florida; and in closing by Dr. Smith.

The Section then adjourned *sine die.*

SECTION ON DERMATOLOGY AND SYPHILOLOGY

Officers

Chairman—Dr. A. H. Lancaster, Knoxville, Tennessee.
Vice-Chairman—Dr. C. M. Hamilton, Nashville, Tennessee.
Secretary—Dr. Winfred A. Showman, Tulsa, Oklahoma.

Tuesday, November 5, 2:00 p.m.

Miami Dermatologists arranged a Dermatological Clinic which was held at the Dade County Court House in the offices of the County Health Department.

Wednesday, November 6, 9:00 a.m.

The Section met in the McAllister Hotel, Miami, Florida, and was called to order by the Chairman, Dr. A. H. Lancaster, Knoxville, Tennessee, who read his Chairman's Address entitled "The Abuses of X-Ray and Radium in Dermatological Conditions" (Lantern Slides).

The Chairman appointed the following Nominating Committee: Dr. M. T. Van Studdiford, Chairman, New Orleans, Louisiana; Dr. Leslie M. Smith, El Paso, Texas; and Dr. Carey C. Barrett, Lexington, Kentucky.

Dr. Donald M. Pillsbury, Professor of Dermatology and Syphilology, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania, read a paper entitled "Present-Day Evaluation of Penicillin Therapy in Syphilis" (Lantern Slides).

Paper by Dr. Charles C. Dennie and Dr. David B. Morgan, Kansas City, Missouri, entitled "The Treatment of Certain Types of Scleroderma" (Lantern Slides), was read by Dr. Morgan, and was discussed by Dr. Wiley M. Sams, Miami, Florida; Dr. Paul H. Power, Waco, Texas; Dr. Erich Brockelmann, St. Louis, Missouri; and Dr. J. Richard Allison, Columbia, South Carolina.

Paper by Dr. M. T. Van Studdiford, Dr. Lee D. McLean and Dr. Arthuro Alvarado, New Orleans, Louisiana, entitled "Nummular-Like Dermatoses" (Lantern Slides), was read by Dr. Van Studdiford, and was discussed by Dr. Martin F. Engman, Jr., Louis, Missouri; Dr. H. M. Robinson, Baltimore, Maryland; Dr. J. Richard Allison, Columbia, South Carolina; and in closing by Dr. Van Studdiford.

Paper by Dr. Thomas W. Murrell and Dr. Thomas W. Murrell, Jr., Richmond, Virginia, entitled "The Physician and the Psoriatic," was read by Dr. Thomas W. Murrell, and was discussed by Dr. D. Truett Gandy, Houston, Texas; Dr. J. Howard King, Nashville, Tennessee; Dr. R. W. Fowlkes, Richmond, Virginia; Dr. L. B. Mount, St. Petersburg, Florida; Dr. A. H. Lancaster, Knoxville, Tennessee; and in closing by Dr. Thomas W. Murrell.

Paper by Dr. H. M. Robinson and Dr. H. M. Robinson, Jr., Baltimore, Maryland, entitled "The Comparative Clinical Values of Some New Drugs in the Pyodermas" (Lantern Slides), was read by Dr. H. M. Robinson, and was discussed by Dr. J. Lamar Callaway, Durham, North Carolina; and in closing by Dr. H. M. Robinson.

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. C. Ferd Lehmann, San Antonio, Texas.
Vice-Chairman—Dr. Wiley M. Sams, Miami, Florida.
Secretary—Dr. Winfred A. Showman, Tulsa, Oklahoma.

Chairman Lancaster thanked the members for cooperating to make the program a success, particularly the Miami dermatologists and the Secretary and Dr. Hamilton.

The Section by vote instructed the Secretary to write the President of the Southern Medical Association and advise him that the Section was very much displeased with the meeting room furnished for the 1946 meeting.

The Section then adjourned *sine die*.

SECTION ON ALLEGY

Officers

Chairman—Dr. I. S. Kahn, San Antonio, Texas.
Vice-Chairman—Dr. J. Warrick Thomas, Richmond, Virginia.
Secretary—Dr. Frank A. Simon, Louisville, Kentucky.

Tuesday, November 5, 9:00 a.m.

The Section met in the McAllister Hotel, Miami, Florida, and was called to order by the Chairman, Dr. I. S. Kahn, San Antonio, Texas, who presided.

The Chairman appointed the following Nominating Committee: Dr. Edna S. Pennington, Chairman, Nashville, Tennessee; Dr. Mason I. Lowance, Atlanta, Georgia; and Dr. W. Ambrose McGee, Richmond, Virginia.

Dr. Mason I. Lowance, Atlanta, Georgia, read a paper entitled "Cardiac Complications and Deaths in Asthmatic Patients" (Lantern Slides), which was discussed by Dr. Lawrence E. Geeslin, Jacksonville, Florida; Dr. Armand E. Cohen, Louisville, Kentucky; and in closing by the essayist.

Dr. I. S. Kahn, San Antonio, Texas, read his Chairman's Address entitled "Advanced Allergic Emphysema."

Dr. Charles B. Shuey, Dallas, Texas, read a paper entitled "Vascular Mechanisms in Allergic Headaches" (Lantern Slides), which was discussed by Dr. Frank C. Metzger, Tampa, Florida (discussion read by the Secretary in the absence of Dr. Metzger); and in closing by the essayist.

Dr. W. Ambrose McGee, Richmond, Virginia, read a paper entitled "The Early Recognition of Allergic Tendencies Early in Infancy," which was discussed by Dr. Luther W. Holloway, Jacksonville, Florida; Dr. Carroll M. Pounders, Oklahoma City, Oklahoma; Dr. Jack A. Rudolph, Miami Beach, Florida; Dr. William Weston, Jr., Columbia, South Carolina; Dr. Lewis Palay, Miami Beach, Florida; Dr. A. Ford Wolf, Temple, Texas; and in closing by Dr. McGee.

Paper by Dr. David R. Thomas, Jr., Augusta, Georgia, and Dr. J. Warrick Thomas, Richmond, Virginia, entitled "The Handling of Certain Emergency Allergic Conditions," was read by Dr. David R. Thomas, Jr., and was discussed by Dr. Mason I. Lowance, Atlanta, Georgia; Dr. Armand E. Cohen, Louisville, Kenutcky; Dr. Jack A. Rudolph, Miami Beach, Florida; and in closing by Dr. David R. Thomas, Jr.

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Frank A. Simon, Louisville, Kentucky.
Vice-Chairman—Dr. J. Warrick Thomas, Richmond, Virginia.
Secretary—Dr. Mason I. Lowance, Atlanta, Georgia.

The Section then adjourned *sine die*.

SECTION ON PHYSICAL MEDICINE

Officers

Chairman—Dr. Robert L. Bennett, Warm Springs, Georgia.
Vice-Chairman—Dr. Frances A. Hellebrandt, Richmond, Virginia.
Secretary—Dr. Emil J. C. Hildenbrand, Washington, D. C.

Wednesday, November 6, 2:00 p.m.

The Section met in the First Christian Church, Harriat Hall, Miami, Florida, and was called to order by the Chairman, Dr. Robert L. Bennett, Director of Physical Medicine, Georgia Warm Springs Foundation, Warm Springs, Georgia, who read his Chairman's Address entitled "The Care of the Paralyzed Shoulder Girdle."

The Chairman appointed the following Nominating Committee: Dr. Emil J. C. Hildenbrand, Chairman, Washington, D. C.; Dr. Frank H. Ewerhardt, St. Louis, Missouri; and Dr. Arthur M. Pruce, Atlanta, Georgia.

Dr. Howard Polley, Consultant in Section on Physical Medicine, Mayo Clinic, Rochester, Minnesota, read a paper entitled "Physical Medicine in the Care of Rheumatoid Arthritics" (Lantern Slides).

Dr. G. Clinton Knowlton (Ph.D.), Assistant Professor of Physical Medicine in Charge of Research, Emory University School of Medicine, Atlanta, Georgia, read a paper entitled "Retarding Denervation Atrophy" (Lantern Slides).

Dr. George D. Wilson, Chief of Physical Medicine, Branch Office No. 4, Veterans Administration, and Director of Physical Medicine, Asheville Orthopedic Home, Asheville, North Carolina, read a paper entitled "High Resistive Low Repetition Exercises" (Lantern Slides).

Dr. Belford C. Blaine, formerly Director, Reconditioning Division, Office of the Surgeon, Headquarters Fourth Service Command, Atlanta, Georgia, read a paper entitled "Evaluation Criteria for Convalescent Therapy" (Lantern Slides).

Dr. Harry M. Robinson, Sr., Professor of Dermatology, University of Maryland School of Medicine, Baltimore, Maryland, read a paper entitled "Electrolysis."

The Nominating Committee reported the following nomination for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Frances A. Hellebrandt, Richmond, Virginia.
Vice-Chairman—Dr. Wayne MacFarland, Washington, D. C.
Secretary—Dr. George D. Wilson, Asheville, North Carolina.

The Section then adjourned *sine die*.

SECTION ON INDUSTRIAL MEDICINE AND SURGERY

Officers

Chairman—Dr. Oliver B. Zeinert, St. Louis, Missouri.
Vice-Chairman—Dr. Stanley J. Seeger, Dallas, Texas.
Secretary—Dr. J. J. Brandabur, Huntington, West Virginia.

Tuesday, November 5, 2:00 p.m.

The Section met in the First Christian Church, Harriat, Hall, Miami, Florida, and was called to order by the Chairman, Dr. Oliver B. Zeinert, St. Louis, Missouri, who presided.

The Chairman appointed the following Nominating Committee: Dr. L. M. Petrie, Chairman, Atlanta, Georgia; Dr. Thomas R. Ramsay, Laurel, Mississippi; and Dr. James H. Eddy, Jr., Shreveport, Louisiana.

Dr. Thomas R. Ramsay, District Surgeon, Gulf, Mobile and Ohio Railroad, and Industrial Surgeon, Mengel Company, Laurel, Mississippi, read a paper entitled "Standardization of Physical Examination for Employment," which was discussed by Dr. Donald A. Covalt, Washington, D. C.

Dr. John R. Green, Surgeon, Sheffield Steel Corporation, and Local Surgeon, Missouri Pacific Railroad, Independence, Missouri, read a paper entitled "Repairing Bone Defects in Tibia and Cranium" (Lantern Slides), which was discussed by Dr. Thomas R. Ramsay, Laurel, Mississippi.

Dr. Donald A. Covalt, Assistant Medical Director for Medical Rehabilitation, Veterans Administration, Washington, D. C., read a paper entitled "The Medical Rehabilitation Program in the Veterans Administration" (Motion Pictures).

Dr. James H. Eddy, Jr., formerly Medical Director, Louisiana Ordnance Plant, Shreveport, Louisiana, read a paper entitled "Nutritional Factors in Prevention and Treatment of the Hepatic Injury Due to Industrial Poisons."

Dr. L. M. Petrie, Director, Division of Industrial Hygiene, Georgia Department of Public Health, Atlanta, Georgia, read a paper entitled "Georgia's Community-Wide Surveys: Chest X-Rays, Blood Tests and Dental."

Dr. Fritz LaCour, Medical Director, The Tutwiler Refinery, Cities Service Refining Corporation, Lake Charles, Louisiana, read a paper entitled "Growing Pains Associated with the Development of a Petroleum Refinery Medical Service" (Lantern Slides).

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Stanley J. Seeger, Dallas, Texas.
Vice-Chairman—Dr. Fritz LaCour, Lake Charles, Louisiana.
Secretary—Dr. J. J. Brandabur, Huntington, West Virginia.

The Section then adjourned *sine die*.

SECTON ON SURGERY

Officers

Chairman—Dr. Walter C. Jones, Miami, Florida.
Vice-Chairman—Dr. J. L. Pythian, Newport, Kentucky.
Secretary—Dr. R. J. Wilkinson, Huntington, West Virginia.

Thursday, November 7, 2:00 p.m.

The Section met in the First Christian Church, Harriat Hall, Miami, Florida, and was called to order by the Chairman, Dr. Walter C. Jones, Miami, Florida, who presided.

The Chairman appointed the following Nominating Committee: Dr. E. L. Henderson, Chairman, Louisville, Kentucky; Dr. R. L. Sanders, Memphis, Tenn; Dr. J. P. Culpepper, Jr., Hattiesburg, Mississippi.

Paper by Dr. James W. Hendricks and Dr. Thomas B. Aycock, Baltimore, Maryland, entitled "Sympathectomy for Certain Forms of Peripheral Vascular Disease," was read by Dr. Hendricks, and was discussed by Dr. J. Ross Veal, Washington, D. C.; and Dr. George D. Lilly, Miami, Florida.

Dr. Walter C. Jones, Miami, Florida, read his Chairman's Address, entitled "Breast Tumors" (Lantern Slides).

Paper by Dr. Jose S. Lastra and Dr. Pedro P. Nobo, Instructors in Surgery, University of Havana School of Medicine, Havana, Cuba, entitled "Vagal Resection in the Treatment of Gastro-Duodenal Ulcer," was read by Dr. Lastra.

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. R. J. Wilkinson, Huntington, West Virginia.
Vice-Chairman—Dr. Joseph S. Stewart, Miami, Florida.
Secretary—Dr. J. Duffy Hancock, Louisville, Kentucky.

Dr. I. A. Bigger, Richmond, Virginia, read a paper entitled "The Treatment of Fibrosarcoma" (Lantern Slides), which was discussed by Dr. Edward Jelks, Jacksonville, Florida; and Dr. Richard M. Fleming, Miami, Florida.

Dr. Edgar J. Poth, Galveston, Texas, read a paper entitled "Sulfasuxidine and Sulfathalidine in Surgery of the Colon" (Lantern Slides and Motion Pictures), which was discussed by Dr. Curtice Rosser, Dallas, Texas.

Dr. R. L. Sanders, Memphis, Tennessee, read a paper entitled "An Evaluation of the Methods of Surgical Treatment of Duodenal Ulcer" (Lantern Slides), which was discussed by Dr. Leonard W. Edwards, Nashville, Tennessee.

The Section then adjourned *sine die*.

SECTION ON ORTHOPEDIC AND TRAUMATIC SURGERY

Officers

Chairman—Dr. Lenox D. Baker, Durham, North Carolina.
Vice-Chairman—Dr. Robert V. Funsten, Charlottesville, Virginia.
Secretary—Dr. Walter G. Stuck, San Antonio, Texas.

Wednesday, November 6, 2:00 p.m.

The Section met in the Miami Auditorium, Miami, Florida, and was called to order by the Chairman, Dr. Lenox D. Baker, Durham, North Carolina, who presided.

The Chairman appointed the following Nominating Committee: Dr. Guy A. Caldwell, Chairman, New Orleans, Louisiana; Dr. H. R. McCarroll, St. Louis, Missouri; and Dr. Randolph L. Anderson, Charleston, West Virginia.

Dr. Lyon K. Loomis, Department of Orthopedic Surgery, Louisiana State University School of Medicine, New Orleans, Louisiana, read a paper entitled "The Treatment of Simple Long Oblique or Simple Spiral Fractures of the Shaft of the Tibia" (Lantern Slides), which was discussed by Dr. H. R. McCarroll, St. Louis, Missouri; and in closing by the essayist.

Dr. Robert C. Lonergan, St. Petersburg, Florida, read a paper entitled "Problems in the Surgical Management of Hip Fractures" (Lantern Slides), which was discussed by Dr. Harold R. Bohlman, Baltimore, Maryland; Dr. Arthur H. Weiland, Miami, Florida; Dr. Lenox D. Baker, Durham, North Carolina; and in closing by the essayist.

Paper by Dr. Randolph L. Anderson and Dr. H. M. Hills, Jr., Charleston, West Virginia, entitled "Fractures of the Pelvis: A Study of End-Results" (Lantern Slides), was read by Dr. Anderson, and was discussed by Dr. Frank L. Fort, Jacksonville, Florida; Dr. F. Walter Carruthers, Little Rock, Arkansas; and in closing by Dr. Anderson.

Dr. Edwin F. Cave, Instructor in Orthopedic Surgery, Harvard Medical School, and Associate Visiting Orthopedic Surgeon, Massachusetts General Hospital, Boston, Massachusetts, read a paper entitled "Indications for Surgery in the Treatment of Fractures and Dislocations of the Bones of the Wrist" (Lantern Slides and Motion Pictures).

Dr. Lenox D. Baker, Durham, North Carolina, read his Chairman's Address entitled "Where To From Here?"

Dr. Wm. McDaniel Ewing, Louisville, Kentucky, read a paper entitled "Early Reparative Treatment of Compound Fractures," which was discussed by Dr. Herbert W. Virgin, Miami, Florida; and in closing by the essayist.

Dr. Charles F. Wood, Louisville, Kentucky, read a paper entitled "Two-Year Follow-Up on One-Quarter of 1944 Epidemic of Poliomyelitis in Kentucky" (Lantern Slides), which was discussed by Dr. Raymond E. Lenhard, Baltimore, Maryland (read by Dr. Harold R. Bohlman in the absence of Dr. Lenhard); and in closing by the essayist.

A vote of appreciation was extended to the guest speaker, Dr. Edwin F. Cave, Boston, Massachusetts, and to Dr. Walter G. Stuck, San Antonio, Texas, for arranging the Section program.

The Section voted to request the Executive Committee of the Council to give the Section two half-days next year.

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Robert V. Funsten, Charlottesville, Virginia.
Vice-Chairman—Dr. Walter G. Stuck, San Antonio, Texas.
Secretary—Dr. C. E. Irwin, Warm Springs, Georgia.

The Section by vote requests the Association management to in the future schedule the Section on Orthopedic and Traumatic Surgery so that it will not conflict with the Section on Physical Medicine.

The Section then adjourned *sine die*.

SECTION ON GYNECOLOGY

Officers

Chairman—Dr. Olin S. Cofer, Atlanta, Georgia.
Vice-Chairman and Acting Secretary—Dr. Robert E. Seibels, Columbia, South Carolina.
Secretary—Dr. Wendell Long, Oklahoma City, Oklahoma.

Thursday, November 7, 9:00 a.m.

The Section met in the Elks Club, Miami, Florida, and was called to order by the Chairman, Dr. Olin S. Cofer, Atlanta, Georgia, who presided.

The Chairman appointed the following Nominating Committee: Dr. John W. Turner, Chairman, Atlanta, Georgia; Dr. Lee F. Turlington, Birmingham, Alabama; and Dr. F. O. Plunkett, Lynchburg, Virginia.

Dr. Lee J. Glober, San Antonio, Texas, read a paper entitled "Treatment of Sterility in the Female," which was discussed by Dr. Gilbert F. Douglas, Birmingham, Alabama; Dr. James R. Bloss, Huntington, West Virginia; Dr. M. Y. Dabney, Birmingham, Alabama; Dr. S. P. Smiseth, St. Petersburg, Florida; and in closing by the essayist.

Dr. Olin S. Cofer, Atlanta, Georgia, read his Chairman's Address entitled "Plastic Operations in Hysterectomy" (Lantern Slides and Motion Pictures).

Dr. Virgil S. Counsellor, Surgical Section, Mayo Clinic, Rochester, Minnesota, read a paper entitled "Vaginal Hysterectomy: Indications and Technics" (Motion Pictures).

Dr. B. T. Beasley, Atlanta, Georgia, read a paper entitled "Dyspareunia," which was discussed by Dr. Lee F. Turlington, Birmingham, Alabama; and Dr. James R. Reinberger, Memphis, Tennessee.

Dr. Walter L. Thomas, Durham, North Carolina, read a paper entitled "Complications Following Radiation Therapy of Carcinoma of the Cervix," which was discussed by Dr. Frank R. Lock, Winston-Salem, North Carolina; Dr. H. C. Chance, Cumberland Gap, Tennessee; and in closing by the essayist.

Dr. C. J. Andrews, Norfolk, Virginia, read a paper entitled "Kurkenberg Tumor, Primary: Follow-Up Report" (Lantern Slides), which was discussed by Dr. Hudnall H. Ware, Jr., Richmond, Virginia; and Dr. Robert T. Spicer, Miami, Florida.

Paper by Dr. Robert B. Greenblatt, Augusta, Georgia, entitled "Glucose Tolerance and Insulin Tolerance Tests as Aids in the Diagnosis of Gynecologic Endocrine Disorders" (Lantern Slides), was read by Dr. Herbert S. Kupperman, Augusta, Georgia, and was discussed by Dr. Carlos F. Lamar, Miami, Florida; Dr. Maurice J. Rose, Miami Beach, Florida; and in closing by Dr. Kupperman.

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Robert E. Seibels, Columbia, South Carolina.
Vice-Chairman—Dr. Wendell Long, Oklahoma City, Oklahoma.
Secretary—Dr. Walter L. Thomas, Durham, North Carolina.

The Section instructed that a telegram be sent Dr. Wendell Long wishing him speedy success in his convalescence.

The Section then adjourned *sine die*.

SECTION ON OBSTETRICS

Officers

Chairman—Dr. Waverly R. Payne, Newport News, Virginia.
Vice-Chairman—Dr. Frank R. Lock, Winston-Salem, North Carolina.
Secretary—Dr. E. Lee Dorsett, St. Louis, Missouri.

Thursday, November 7, 2:00 p.m.

The Section met in the Elks Club, Miami, Florida, and was called to order by the Chairman, Dr. Waverly R. Payne, Newport News, Virginia, who read his Chairman's Address entitled "Obstetric Hemorrhage—Incidence and Management: A Two-Year Study of 1,025 Private Cases" (Lantern Slides).

The Chairman appointed the following Nominating Committee: Dr. R. A. White, Chairman, Asheville, North Carolina; Dr. Hudnell H. Ware, Jr., Richmond, Virginia; and Dr. Thomas Benton Sellers, New Orleans, Louisiana.

Dr. Samuel A. Cosgrove, Medical Director and Superintendent, Margaret Hague Maternity Hospital, Jersey City, New Jersey, read a paper entitled "The Management and Treatment of Late Toxemias of Pregnancy" (Lantern Slides).

Paper by Dr. Hector Valle Pineda, President, Colegio Medico de la Habana (Medical Association of Havana), Havana, Cuba, and Dr. Alfredo Sardinas Ramirez, Havana, Cuba, entitled "Cuban Concept of the Cephalo-Pelvic Disproportion Syndrome and its Treatment," was read by Dr. Pineda.

The Nominating Committee reported the following nominations for Section officers, the nominees being duly elected by vote of the Section.

Chairman—Dr. Frank R. Lock, Winston-Salem, North Carolina.
Vice-Chairman—Dr. E. Lee Dorsett, St. Louis, Missouri.
Secretary—Dr. Williamson Z. Bradford, Charlotte, North Carolina.

Dr. William F. Guerriero, Associate Professor of Obstetrics, Southwestern Medical College, Dallas, Texas, read a paper entitled "Syphilis of the Cervix" (Lantern Slides), which was discussed by Dr. Edward L. King, New Orleans, Louisiana; Dr. J. Randolph Perdue, Miami, Florida; and in closing by the essayist.

Dr. P. B. Russell, Jr., Memphis, Tennessee, read a paper entitled "Abortions Treated Conservatively: A Twelve-Year Study Covering 3,739 Cases" (Lantern Slides), which was discussed by Dr. W. O. Johnson, Louisville, Kentucky; Dr. Thomas Benton Sellers, New Orleans, Louisiana; Dr. Hector Valle Pineda, Havana, Cuba; and in closing by the essayist.

Paper by Dr. Thomas Benton Sellers and Dr. Claude G. Callender, New Orleans, Louisiana, entitled "Infertile Marriages: Method of Study and Results in One Hundred and Thirty-Two Cases" (Lantern Slides), was read by Dr. Sellers, and was discussed by Dr. M. Y. Dabney, Birmingham, Alabama; Dr. Walter A. Ruch, Memphis, Tennessee; and in closing by Dr. Sellers.

The Section then adjourned *sine die*.

SECTION ON UROLOGY

Officers

Chairman—Dr. Ray M. Bobbitt, Huntington, West Virginia.
Vice-Chairman—Dr. William T. Briggs, Lexington, Kentucky.
Secretary—Dr. Jarratt P. Robertson, Birmingham, Alabama.

Wednesday, November 6, 9:00 a.m.

The Section met in the First Christian Church, Harriat Hall, Miami, Florida, and was called to order by the Chairman, Dr. Ray M. Bobbitt, Huntington, West Virginia, who presided.

The Chairman appointed the following Nominating Committee: Dr. J. Ullman Reeves, Chairman, Mobile, Alabama; Dr. Austin I. Dodson, Richmond, Virginia; and Dr. Nelse F. Ockerblad, Kansas City, Missouri.

Dr. A. Keller Doss, Fort Worth, Texas, read a paper entitled "Translumbar Aortography" (Lantern Slides), which was discussed by Dr. Milton M. Coplan, Miami, Florida.

Dr. Harold P. McDonald, Atlanta, Georgia, gave a brief eulogy on Dr. Alfred Iverson Folsom, Dallas, Texas, recently deceased President of the American Urological Association, who was to have given a paper at this meeting of the Section. The members stood for a moment as a silent tribute to the memory of their beloved friend.

Paper by Dr. Louis M. Orr, Dr. A. Fred Turner, Jr., and Dr. Joseph C. Hayward, Orlando, Florida, entitled "Technical Considerations in Adequate Transurethral Prostatic Resection" (Lantern Slides), was read by Dr. Turner, and was discussed by Dr. Harold P. McDonald, Atlanta, Georgia; Dr. E. Clay Shaw, Miami, Florida; Dr. I. G. Duncan, Memphis, Tennessee; Dr. Nelse F. Ockerblad, Kansas City, Missouri; Dr. Clyde Leroy Deming, New Haven, Connecticut; Dr. Monroe Wolf, New Orleans, Louisiana; and Dr. Hubert William Ketron, Atlanta, Georgia.

Dr. Ray M. Bobbitt, Huntington, West Virginia, read his Chairman's Address, entitled "Evaluation of Certain Types of Renal Pain" (Lantern Slides).

Dr. Clyde Leroy Deming, Clinical Professor of Urology, Yale University School of Medicine, New Haven, Connecticut, read a paper entitled "Present Evaluation of the Response of Prostatic Cancer to Hormone Therapy" (Lantern Slides).

Dr. Edwin P. Alyea, Durham, North Carolina, read a paper entitled "Modern Chemotherapy in Urinary Tract Infection" (Lantern Slides), which was discussed by Dr. Samuel L. Raines, Memphis, Tennessee.

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Jarratt P. Robertson, Birmingham, Alabama.
Vice-Chairman—Dr. E. Clay Shaw, Miami, Florida.
Secretary—Dr. Robert F. Sharp, New Orleans, Louisiana.

The Section by vote requests the Executive Committee of the Council to give the Section two half-day sessions next year.

The Section then adjourned *sine die*.

SECTION ON PROCTOLOGY

Officers

Chairman—Dr. Victor K. Allen, Tulsa, Oklahoma.
Vice-Chairman—Dr. William J. Martin, Louisville, Kentucky.
Secretary—Dr. Tom E. Smith, Dallas, Texas.

Thursday, November 7, 9:00 a.m.

The Section met in the First Christian Church, Harriat Hall, Miami, Florida, and was called to order by the Chairman, Dr. Victor K. Allen, Tulsa, Oklahoma, who read his Chairman's Address entitled "Pruritus Ani in Office Practice."

The Chairman appointed the following Nominating Committee: Dr. Curtice Rosser, Chairman, Dallas, Texas; Dr. Emmett H. Terrell, Richmond, Virginia; and Dr. Marion C. Pruitt, Atlanta, Georgia.

Paper by Dr. Harry E. Bacon, Professor of Proctology, Temple University School of Medicine, and Dr. Robert J. Rowe, Philadelphia, Pennsylvania, entitled "Abdominoperineal Proctosigmoidectomy for Rectal Cancer Complicating Pregnancy: Report of Four Cases," was read by Dr. Bacon, and was discussed by Dr. Vernon G. Jeurink, Denver, Colorado.

Dr. Jorge Muniz, Havana, Cuba, read a paper entitled "Proctology as a Specialty: A Study of Its Development in Cuba."

Dr. Curtice Rosser, Dallas, Texas, read a paper entitled "New Hemostatic Dressings for Anorectal Surgery," which was discussed by Dr. James K. Anderson, Minneapolis, Minnesota; and Dr. John Q. McGivney, Galveston, Texas.

Dr. Rufus Alley, Lexington, Kentucky, read a paper entitled "Modern Management of Hemorrhoidal Disease," which was discussed by Dr. Karl Zimmerman, Pittsburgh, Pennsylvania; and Dr. William Thomas Brockman, Greenville, South Carolina.

Dr. Julius E. Linn, Birmingham, Alabama, read a paper entitled "Treatment of Patients with Rectal Diseases," which was discussed by Dr. Louis E. Moon, Omaha, Nebraska; and Dr. Alvin Baldwin, Dallas, Texas.

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Tom E. Smith, Dallas, Texas.
Vice-Chairman—Dr. Claude G. Mentzer, Miami, Florida.
Secretary—Dr. Hoyt R. Allen, Little Rock, Arkansas.

The Chairman expressed sincere thanks on behalf of the Section to the Miami hosts.

The Section then adjourned *sine die*.

SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY

Officers

Chairman—Dr. Kate Savage Zerfoss, Nashville, Tennessee.
Chairman-Elect—Dr. Calhoun McDougall, Atlanta, Georgia.
Vice-Chairman—Dr. V. R. Hurst, Longview, Texas.
Secretary—Dr. Alston Callahan, Birmingham, Alabama.

Wednesday, November 6, 9:00 a.m.

The Section met in the Elks Club, Miami, Florida, and was called to order by the Chairman, Dr. Kate Savage Zerfoss, Nashville, Tennessee, who relinquished the gavel to Dr. V. R. Hurst, Vice-Chairman, Longview, Texas, who then presided.

The Chairman appointed the following Nominating Committee: Dr. E. W. Rucker, Jr., Chairman, Birmingham, Alabama; Dr. Francis E. LeJeune, New Orleans, Louisiana; and Dr. Thomas W. Moore, Huntington, West Virginia.

Dr. Frederick A. Figi, Department of Laryngology, Oral and Plastic Surgery, Mayo Clinic, Rochester, Minnesota, read a paper entitled "The Treatment of Cicatricial Stenosis of the Larynx and Trachea" (Lantern Slides).

Dr. M. F. Arbuckle, St. Louis, Missouri, read a paper entitled "Radiation Therapy for Cancer of the Throat after Preliminary Removal of the Cartilages," which was discussed by Dr. Murdock Equen, Atlanta, Georgia; Dr. Frederick A. Figi, Rochester, Minnesota; Dr. Francis E. LeJeune, New Orleans, Louisiana; Dr. Joseph I. Kemler, Baltimore, Maryland; Dr. H. Marshall Taylor, Jacksonville, Florida; and in closing by the essayist.

Dr. Robin Harris, Jackson, Mississippi, read a paper entitled "The Intravenous Administration of Histamine as a Treatment of Meniere's Syndrome" (Lantern Slides), which was discussed by Dr. A. A. Burke, Norfolk, Virginia; Dr. J. Brown Farrior, New Orleans, Louisiana; and in closing by the essayist.

Dr. W. D. Gill, San Antonio, Texas, read a paper entitled "Otomycosis," which was discussed by Dr. Harvey B. Searcy, Tuscaloosa, Alabama; Dr. Oscar Wilkinson, Washington, D. C.; and in closing by the essayist.

Dr. V. K. Hart, Charlotte, North Carolina, read a paper entitled "Some Misleading Manifestations of Otolaryngological Infections and Tumors and Their Inter-relationship" (Lantern Slides), which was discussed by Dr. Calhoun McDougall, Atlanta, Georgia; Dr. F. E. Masty, Coral Gables, Florida; and in closing by the essayist.

The Section adjourned until 12:30 noon.

Wednesday, November 6, 12:30 noon

The Section met for luncheon, McAllister Hotel, Dr. Alston Callahan, Secretary, presiding. There was a short roundtable discussion on the paper by Dr. Frederick A. Figi read at the morning session.

Wednesday, November 6, 2:30 p.m.

The Section met in the Elks Club, Miami, Florida, and was called to order by the Chairman, Dr. Kate Savage Zerfoss, Nashville, Tennessee, who presided.

Dr. Brittain F. Payne, Assistant Clinical Professor of Ophthalmology, New York University College of Medicine, New York, New York, read a paper entitled "Causes of Failure in Glaucoma Operations" (Lantern Slides), which was discussed by Dr. Alston Callahan, Birmingham, Alabama; Dr. W. R. Buffington, New Orleans, Louisiana; Dr. K. W. Constantine, Palm Beach, Florida; Dr. Angus L. MacLean, Baltimore, Maryland; Dr. Shaler Richardson, Jacksonville, Florida; Dr. S. B. Forbes, Tampa, Florida; and in closing by the essayist.

Dr. W. R. Buffington, New Orleans, Louisiana, read a paper entitled "Separation of the Retina: Technic and Results," which was discussed by Dr. Shaler Richardson, Jacksonville, Florida; Dr. William B. Clark, New Orleans, Louisiana; Dr. Alston Callahan, Birmingham, Alabama; and in closing by the essayist.

Dr. E. H. Coachman, Muskogee, Oklohamo, read a paper entitled "A New Syndrome: Vertical Phoria with Endocrine Dysfunction" (Lantern Slides), which was discussed by Dr. William B. Clark, New Orleans, Louisiana; and in closing by the essayist.

The Section expressed its appreciation to the local Committee on Arrangements and its pleasure in meeting in Miami.

The Section authorized its three members who are on the Council, Dr. Kate Savage Zerfoss, Dr. F. A. Holden and Dr. Harvey B. Searcy, to request the Executive Committee of the Council to give the Section more time next year, extending its sessions over two or three days.

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman-Elect—Dr. Shaler Richardson, Jacksonville, Florida.
Vice-Chairman—Dr. V. K. Hart, Charlotte, North Carolina.
Secretary—Dr. Alston Callahan, Birmingham, Alabama.

Dr. F. A. Holden, Baltimore, Maryland, read a paper entitled "Migraine as Seen by the Ophthalmologist," which was discussed by Dr. George M. Haik, New Orleans, Louisiana (discussion read by Dr. L. A. Breffeilh, New Orleans, Louisiana, in absence of Dr. Haik); and in closing by the essayist.

Dr. S. B. Forbes, Tampa, Florida, read a paper entitled "Exophthalmos in Relation to Orbital Tumors: Report of Eight Cases" (Lantern Slides), which was discussed by Dr. Richard A. Miller, Memphis, Tennessee; Dr. William Banks Anderson, Durham, North Carolina; and in closing by the essayist.

The Section then adjourned *sine die*.

SECTION ON ANESTHESIOLOGY

Officers

Chairman—Dr. John Adriani, New Orleans, Louisiana.
Vice-Chairman—Dr. Merrill C. Beck, New Orleans, Louisiana.
Secretary—Dr. Fred E. Woodson, Tulsa, Oklahoma.

Tuesday, November 5, 2:00 p.m.

The Section met in the First Christian Church, Christian Endeavor Room, Miami, Florida, and was called to order by the Chairman, Dr. John Adriani, New Orleans, Louisiana, who presided.

The Chairman appointed the following Nominating Committee: Dr. R. Douglas Sanders, Chairman, Louisville, Kentucky; Dr. Leo F. Klenk, New Orleans, Louisiana; and Dr. David A. Davis, New Orleans, Louisiana.

Dr. David A. Davis, New Orleans, Louisiana, read a paper entitled "Some Systemic Disturbances Occurring During Spinal Anesthesia," which was discussed by Dr. William Eldridge Bageant, Washington, D. C.; Dr. C. H. Richardson, Sr., Macon, Georgia; and Dr. Charles J. Bowne, Washington, D. C.

Dr. R. Douglas Sanders, Louisville, Kentucky, read a paper entitled "Anesthesia for Maxillofacial Surgery" (Lantern Slides), which was discussed by Dr. Ralph S. Sappenfield, Miami, Florida; and Dr. John Adriani, New Orleans, Louisiana.

Paper by W. R. Turnbow, Captain, Medical Corps, U. S. Army, Tulsa, Oklahoma, entitled "Anesthesia for Severe Abdominal Wounds (Based on War Experiences with the 56th Evacuation Hospital in Italy)" (Lantern Slides), was read by the Secretary in the absence of the essayist.

Dr. Randle J. Brady, Houston, Texas, read a paper entitled "Experiences with Pentothal Sodium," which was discussed by Dr. John Adriani, New Orleans, Louisiana; Dr. Hiram R. Elliott, Birmingham, Alabama; Dr. Julius D. Holly, Miami Beach, Florida; Dr. George C. Austin, Miami, Florida; and Dr. Fred E. Woodson, Tulsa, Oklahoma.

Paper by Dr. Ralph S. Sappenfield, Miami, Florida, and Dr. John Adriani, New Orleans, Louisiana, entitled "Anesthetic Accidents," was read by Dr. Sappenfield.

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. Merrill C. Beck, New Orleans, Louisiana.
Vice-Chairman—Dr. Fred E. Woodson, Tulsa, Oklahoma.
Secretary—Dr. Ralph S. Sappenfield, Miami, Florida.

The Section then adjourned *sine die*.

SECTION ON MEDICAL EDUCATION AND HOSPITAL TRAINING

Officers

Chairman—Dr. Douglas H. Sprunt, Memphis, Tennessee.
Vice-Chairman—Dr. Donald Slaughter, Dallas, Texas.
Secretary—Dr. J. P. Gray, Oklahoma City, Oklahoma.

Tuesday, November 5, 9:00 a.m.

The Section met in the Elks Club, Miami, Florida, and was called to order by the Chairman, Dr. Douglas H. Sprunt, Professor of Pathology, University of Tennessee College of Medicine, Memphis, Tennessee, who read his Chairman's Address entitled "The Role of the Pathologist in Medical Education."

The Chairman appointed the following Nominating Committee: Dr. Russell L. Holman, Chairman, New Orleans, Louisiana; Dr. Wiley D. Forbus, Durham, North Carolina; and Dr. Trawick H. Stubbs, Emory University, Georgia.

Symposium on Integration of the Hospital with the Teaching and Research Programs of the School of Medicine

Dr. Paul B. Magnuson, Acting Assistant Medical Director for Research and Education, Veterans Administration, Washington, D. C., read a paper entitled "The Integration of the Veterans Administration Hospital Service."

Dr. Paul B. Beeson, Professor of Medicine, Emory University School of Medicine, Atlanta, Georgia, read a paper entitled "The Integration of the Teaching Program of the Department of Medicine with the Hospital Service."

Dr. Keith S. Grimson, Assistant Professor of Surgery, Duke University School of Medicine, Durham, North Carolina, read a paper entitled "The Integration of the Teaching Program of the Department of Surgery with the Hospital Service."

Paper by Dr. Frank E. Whitacre, Professor of Obstetrics and Gynecology, University of Tennessee College of Medicine, Memphis, Tennessee, entitled "The Integration of the Teaching Program of the Department of Obstetrics and Gynecology with the Hospital Service," was read by Dr. Walter M. Loeb, Memphis, Tennessee, in the absence of the essayist.

Dr. Russell L. Holman, Professor of Pathology and Bacteriology, Louisiana State University School of Medicine, New Orleans, Louisiana, read a paper entitled "The Integration of the Teaching of the Basic Medical Sciences with the Hospital Service."

The Symposium was discussed by Dr. Angel Vieta, Dean, University of Havana School of Medicine, Havana, Cuba; Dr. Felix Hurtado, Professor of Pediatrics, University of Havana School of Medicine, Havana, Cuba; Dr. R. H. Rigdon, Professor of Pathol-

ogy, University of Arkansas School of Medicine, Little Rock, Arkansas; Dr. Wiley D. Forbus, Professor of Pathology, Duke University School of Medicine, Durham, North Carolina; Dr. Russell L. Holman, Professor of Pathology and Bacteriology, Louisiana State University School of Medicine, New Orleans, Louisiana; and Dr. Douglas H. Sprunt, Professor of Pathology, University of Tennessee College of Medicine, Memphis, Tennessee.

The Nominating Committee reported the following nominations for th Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. George T. Harrell, Winston-Salem, North Carolina.
Vice-Chairman—Dr. Edgar Hull, New Orleans, Louisiana.
Secretary—Dr. J. P. Gray, Oklahoma City, Oklahoma.

The Section then adjourned *sine die*.

SECTION ON PUBLIC HEALTH

Officers

Chairman—Dr. Ben F. Wyman, Columbia, South Carolina.
Vice-Chairman—Dr. George A. Dame, Jacksonville, Florida.
Secretary—Dr. Robert E. Fox, Raleigh, North Carolina.

Wednesday, November 6, 2:00 p.m.

The Section met in the First Christian Church, Christian Endeavor Room, Miami, Florida, and was called to order by the Chairman, Dr. Ben F. Wyman, State Health Officer, Columbia, South Carolina, who read his Chairman's Address entitled "Preventive Medicine Is the Responsibility of the Physician."

The Chairman appointed the following Nominating Committee: Dr. P. E. Blackerby, Chairman, State Health Officer, Louisville, Kentucky; Dr. W. K. Sharp, Jr., Medical Director, U. S. P. H. S., Richmond, Virginia; and Dr. C. L. Guyton, Director, Division of Cancer Control, South Carolina State Board of Health, Columbia, South Carolina.

Paper by Dr. Angel Reaud, Professor of Public Health and Preventive Medicine, University of Havana School of Medicine, Havana, Cuba, entitled "An Outbreak of Gastroenteritis Caused by *S. typhi murium*, Presumably Waterborne" (Lantern Slides), was read by Dr. Domingo F. Ramos, Havana, Cuba, for Dr. Reaud, who was absent on account of illness, and was discussed by Dr. A. V. Hardy, Jacksonville, Florida.

Miss A. Helen Martikainen, Public Health Education Consultant, U. S. Public Health Service, District No. 2, Richmond, Virginia, read a paper entitled "Mobilizing Community Resources for Health," which was discussed by Dr. Felix J. Underwood, State Health Officer, Jackson, Mississippi.

Paper by Dr. Virgil Scott, Assistant Professor of Medicine and Assistant Professor of Preventive Medicine, and Dr. E. Gurney Clark, Professor of Preventive Medicine, Washington University School of Medicine, St. Louis, Missouri, entitled "Quantitive Serologic Tests for Syphilis: Use and Availability for Venereal Disease Control" (Lantern Slides), was read by Dr. Scott, and was discussed by Dr. Chester N. Frazier, Galveston, Texas; and Mr. E. L. Webb, State Board of Health, Atlanta, Georgia.

Dr. Dale C. Cameron, Senior Surgeon, Assistant Chief, Mental Hygiene Division, U. S. Public Health Service, Washington, D. C., read a paper entitled "The New Mental Health Act and Plans for Its Operation," which was discussed by Dr. Carl V. Reynolds, State Board of Health, Raleigh, North Carolina; and Dr. T. S. Hill, University of Tennessee College of Medicine, Memphis, Tennessee.

Dr. E. R. Rickard, Rockefeller Foundation, and Consultant in Epidemiology, Florida State Board of Health, Jacksonville, Florida, read a paper entitled "Typhus Fever in Florida" (Lantern Slides), which was discussed by Dr. Edwin G. Riley, State Board of Health, Jacksonville, Florida; and Dr. John Moore Whitney, City Board of Health, New Orleans, Louisiana.

Dr. L. L. Williams, Jr., Medical Director, U. S. Public Health Service, and Chief of Health Branch, Division of International Labor, Social and Health Affairs, U. S. Department of State, Washington, D. C., read a paper entitled "Creation of World Health Organization."

The Nominating Committee reported the following nominations for the Section officers, the nominees being duly elected by vote of the Section:

Chairman—Dr. B. F. Austin, Montgomery, Alabama.
Vice-Chairman—Dr. Virginia Howard, Jackson, Mississippi.
Secretary—Dr. Robert E. Fox, Raleigh, North Carolina.

The Section then adjourned *sine die*.

AMERICAN PUBLIC HEALTH ASSOCIATION
Southern Branch

Meeting conjointly with Southern Medical Association

Officers

President—Dr. W. K. Sharp, Jr., Richmond, Virginia.
First Vice-President—Dr. George A. Denison, Birmingham, Alabama.
Second Vice-President—(Mr.) J. M. Jarrett, Raleigh, North Carolina.
Third Vice-President—(Mrs.) Abbie R. Weaver, R. N., Atlanta, Georgia.
Secretary-Treasurer—Dr. John W. Williams, Jr., Jefferson City, Missouri.

Tuesday, November 5, 9:30 a.m.

The first session of the fourteenth annual meeting of the American Public Health Association, Southern Branch, convened at the First Christian Church, Christian Endeavor Room, Miami, Florida, and was called to order by the President, Dr. W. K. Sharp, Jr., Medical Director, U. S. Public Health Service, Richmond, Virginia, who read his President's Address entitled "Our Increased Opportunities." Following the President's Address, three other papers were presented.

Wednesday, November 6, 9:30 a.m.

The second session convened at the First Christian Church, Christian Endeavor Room, Miami, and was called to order by the President, Dr. W. K. Sharp, Jr., who presided.

Four papers were presented at that session.

At the business meeting at the close of this session, the following officers were elected:

President—Dr. John W. Williams, Jr., State Director of Local Health, State Board of Health, Jefferson City, Missouri.
First Vice-President—Dr. G. S. T. Peoples, Director of Crippled Children's Service, State Board of Health, Columbia, South Carolina.
Second Vice-President—(Mr.) O. C. Hopkins, U. S. Public Health Service, Richmond, Virginia.
Third Vice-President—(Mrs.) Sarah Wrench, R.N., State Board of Health, Richmond, Virginia.
Secretary-Treasurer—Dr. John M. Whitney, City Health Officer, New Orleans Health Department, New Orleans, Louisiana.
Delegate to A. P. H. A.—Dr. Felix J. Underwood, State Health Officer, Jackson, Mississippi.

Wednesday, November 6, 12:30 noon

The Governing Council of the American Public Health Association, Southern Branch, held its meeting at a luncheon at the McAllister Hotel, Miami, Wednesday, November 6, 12:30 noon, the President, Dr. W. K. Sharp, Jr., presiding. The following resolution was introduced and passed:

WHEREAS, the members of the Southern Branch of the American Public Health Association includes professionally and technically trained people other than physicians and, further, that this Association feels a deep responsibility for continuing the educational opportunities of all people engaged in or interested in public health as well as medical personnel in the southern states;

NOW THEREFORE, BE IT RESOLVED, that the next meeting of this Association be held individually of any other organization, and that the President and the Secretary select the time and place of such meeting; and

BE IT FURTHER RESOLVED, that this Association wishes to express to the officers of the Southern Medical Association their deepest appreciation for the opportunity of meeting conjointly with that Association for the past fourteen years and for all the courtesies and assistance which the executive officers of the Southern Medical Association have shown toward this Association in helping to make our meetings a success.

SANITARY ENGINEERS' AND SANITARY OFFICERS' SECTION

Monday, November 4, 2:00 p.m.

Sanitary Engineers' and Sanitary Officers' Section met at the McAllister Hotel, Biscayne Room, Miami, Florida, and was called to order by the Vice-Chairman, Mr. Joel C. Beall, who presided. An address of welcome was given by Mr. Russell Broughman, Director of Sanitation, Dade County Health Department, Miami, after which four papers were presented. At the business session following the program the following officers were elected:

Chairman—Mr. Joel C. Beall, Macon-Bibb County Health Department, Macon, Georgia.
Vice-Chairman—Mr. James H. Stephens, State Sanitary Engineer, South Carolina State Board of Health, Columbia, South Carolina.
Secretary—Mr. Harold C. Taylor, U. S. Public Health Service, District No. 4, New Orleans, Louisiana.

AMERICAN COLLEGE OF CHEST PHYSICIANS
Southern Chapter

Meeting conjointly with Southern Medical Association

Officers

President—Dr. Carl C. Aven, Atlanta, Georgia.
First Vice-President—Dr. Paul A. Turner, Louisville, Kentucky.
Second Vice-President—Dr. Herbert L. Mantz, Kansas City, Missouri.
Secretary-Treasurer—Dr. Benjamin L. Brock, Oteen, North Carolina.

Monday, November 4

The American College of Chest Physicians, Southern Chapter, met at the Alcazar Hotel, Miami, Florida. There were two scientific sessions, 9:00 a.m. and 2:30 p.m., at which time nine papers were read. At a luncheon meeting at 12:30 noon, there was an "Information Please" program.

At the business meeting held at the luncheon the following officers were elected:

President—Dr. Paul A. Turner, Louisville, Kentucky.
First Vice-President—Dr. Herbert L. Mantz, Kansas City, Missouri.
Second Vice-President—Dr. Dean B. Cole, Richmond, Virginia.
Secretary-Treasurer—Dr. Benjamin L. Brock, Oteen, North Carolina.
Chairman Program Committee—Dr. David H. Waterman, Knoxville, Tennessee.

The annual dinner was held on Monday evening at Alcazar Hotel, Dr. M. J. Flipse, Miami, presiding.

Dr. Carl C. Aven, Atlanta, Georgia, gave his President's Address entitled "The Calendar of the Physician," and Dr. Charles M. Hendricks, President, American College of Chest Physicians, El Paso, Texas, gave an address, "Our College: Its Aims and Its Future."

The Southern Chapter concluded its activities with an X-Ray Conference following the dinner.

AMERICAN ACADEMY OF PEDIATRICS
Region 2

The American Academy of Pediatrics, Region 2, had a luncheon meeting in connection with the annual meeting of the Southern Medical Association, Miami, Florida, Columbus Hotel Roof, 12:30 noon, Wednesday, November 6. The luncheon was arranged jointly by Dr. Warren W. Quillian, Coral Gables, Florida, Chairman, Region 2, American Academy of Pediatrics, and Dr. Harvey F. Garrison, Jackson, Mississippi, State Chairman for Mississippi. Dr. Garrison presided.

There were seventy members of the Academy present. Some of the distinguished members were recognized and spoke briefly. Those in attendance were unanimous in their opinion that the Southern Medical Association meeting at Miami was as a whole quite a success and all were particularly gratified with the Section on Pediatrics.

Dr. Amos Christie, Professor of Pediatrics, Vanderbilt University School of Medicine, was the principal speaker for the occasion, his address being along the line of folklore of medicine.

It was apparently the unanimous wish of this group that some arrangements be made whereby the national meeting of the Academy would not be held so close to the time of the meeting of the Southern Medical Association. It was requested that this wish be presented to the Executive Committee of the Academy at its next annual meeting to be held in February.

AMERICAN COLLEGE OF PHYSICIANS
Florida Section

Officers

President—Dr. E. Sterling Nichol, Miami, Florida.
Secretary—Dr. Rollin D. Thompson, Orlando, Florida.

Sunday, November 3, 9:30 a.m.

The American College of Physicians, Florida Section, held their semi-annual meeting conjointly with the Southern Medical Association, their first session being held at the St. Francis Hospital, Miami Beach, the President, Dr. E. Sterling Nichol, Miami, presiding.

Six presentations were made. The scientific session was followed by a business meeting and a luncheon provided by St. Francis Hospital.

The following officers elected for 1947:

President—Dr. William C. Blake, Tampa, Florida.
Secretary—Dr. Scheffel H. Wright, Miami, Florida.

The Section will have a luncheon meeting with Florida State Medical Association in April and a regional meeting next fall of Florida, Georgia, Alabama, North Carolina and South Carolina.

Monday, November 4, 9:30 a.m.

The second session was held at the McAllister Hotel, Miami, the President, Dr. Nichol, presiding.

Seven papers were presented. Following the scientific program, there was a luncheon for the members and guests including a number of physicians from Cuba.

AMERICAN SOCIETY OF TROPICAL MEDICINE

Meeting conjointly with Southern Medical Association

Officers

President—Dr. James S. Simmons, Boston Massachusetts.
President-Elect—Dr. Edward I. Salisbury, New York, New York.
Vice-President—Dr. Joseph S. D'Antoni, New Orleans, Louisiana.
Secretary-Treasurer—Dr. Norman H. Topping, Bethesda, Maryland.
Editor—Dr. Charles F. Craig, San Antonio, Texas.

The forty-third annual meeting of the American Society of Tropical Medicine was held in Miami, Florida, November 4-7, with headquarters and scientific meetings at the Everglades Hotel. The meeting was held as usual during the fortieth annual meeting of the Southern Medical Association. As in the past, the Society had a joint scientific session with the National Malaria Society, and the members of the Society were guests of the American Academy of Tropical Medicine for their annual dinner.

Three scientific sessions of the Society were held, one on Tuesday forenoon, one Wednesday afternoon, and the concluding session Thursday afternoon. The program indicated twenty-two papers for these three sessions and nine for the joint session with the National Malaria Society. All sessions were well attended. Each afternoon there was a hospitality session.

At the luncheon meeting at the McAllister Hotel on Wednesday, the President, Dr. James S. Simmons, gave his President's Address.

The business meeting was held on Tuesday afternoon, November 5, the President presiding. Reports were made by the Secretary-Treasurer, Editor of the Journal, and others. It was decided that the Committee on Post-War Tropical Medicine would be dissolved and a new committee was created on Tropical Medi-

cine and International Health. The newly elected officers were:

President—Dr. Edward I. Salisbury, United Fruit Company, New York, New York.
President-Elect—Dr. Joseph S. D'Antoni, Tulane University School of Medicine, New Orleans, Louisiana.
Vice-President—Dr. L. T. Coggeshall, University of Chicago School of Medicine, Chicago, Illinois.
Secretary-Treasurer—Dr. Norman H. Topping, National Institute of Health, U. S. Public Health Service, Bethesda, Maryland.
Editor of Journal—Dr. Mark F. Boyd, Rockefeller Foundation, Tallahassee, Florida.

THE AMERICAN ACADEMY OF TROPICAL MEDICINE

Meeting conjointly with the American Society of Tropical Medicine

Officers

President—Dr. James S. Simmons, Boston, Massachusetts.
Vice-President—Dr. George K. Strode, New York, New York.
Secretary—Dr. Ernest Carroll Faust, New Orleans, Louisiana.
Treasurer—Dr. Thomas T. Mackie, Winston-Salem, North Carolina.

The American Academy of Tropical Medicine held its thirteenth annual meeting at the Alcazar Hotel, Miami, Florida, on Wednesday, November 6, 7:00 p.m., a dinner meeting. Dr. Lowell T. Coggeshall, University of Chicago, Chicago, presided as toastmaster and introduced the President, Dr. James S. Simmons, Brigadier General, U. S. Army (Retired); Dean, School of Public Health, Harvard University, Boston, Massachusetts, who delivered his President's Address entitled "Tropical Medicine and the Challenge of Global Peace." Following the address a kodachrome sound film on "Sand-fly Borne Diseases" was shown, courtesy of the U. S. Army Professional Services.

At the business session the following were elected to membership: Dr. Karl R. Lundeberg, Colonel, Medical Corps, U. S. Army, Washington, D. C.; Dr. Oliver R. McCoy, Rockefeller Foundation, Paris, France; Dr. Gilbert F. Otto, Baltimore, Maryland; and Dr. James J. Sapero, Captain, Medical Corps, U. S. Navy, Washington, D. C.

The following officers were elected for the coming year:

President—Dr. George K. Strode, Director, International Health Division, Rockefeller Foundation, New York, New York.
Vice-President, Dr. George C. Shattuck, Harvard Medical School, Boston, Massachusetts.
Secretary—Dr. Ernest Carroll Faust, Tulane University School of Medicine, New Orleans, Louisiana.
Treasurer—Dr. Jean A. Curran, Long Island College of Medicine, Brooklyn, New York.
Councillor for 5-year Term—Dr. Justin Andrews, Communicable Disease Center, U. S. Public Health Service, Atlanta, Georgia.

NATIONAL MALARIA SOCIETY

Meeting conjointly with Southern Medical Association

Officers

Honorary President—Mr. J. A. LePrince, Memphis, Tennessee.
President—Dr. Mark F. Boyd, Tallahassee, Florida.
President-Elect—Mr. Mark D. Hollis, Washington, D. C.
Vice-President—Mr. J. A. Mulrennan, Jacksonville, Florida.
Secretary-Treasurer—Dr. Martin D. Young, Columbia, South Carolina.

Tuesday, November 5, 2:00 p.m.

The National Malaria Society convened for its twenty-ninth annual meeting at the Everglades Hotel, Miami, Florida, and was called to order by the President, Dr. Mark F. Boyd, Tallahassee, Florida, who presided. The President appointed Nominating and Auditing Committees.

A program consisting of twelve papers dealing mainly with advances in malaria control was presented.

Wednesday, November 6, 9:00 a.m.

The Society reconvened at the Everglades Hotel, Miami, in joint session with the American Society of Tropical Medicine, Dr. Mark F. Boyd, President, National Malaria Society, and Dr. James S. Simmons, President, American Society of Tropical Medicine, jointly presiding.

Seven papers were presented in person and two presented by title. Of particular interest was a series of papers on the new anti-malarial drugs.

Thursday, November 7, 9:00 a.m.

The Society reconvened at the Everglades Hotel, and was called to order by Mr. J. A. Mulrennan, Vice-President, Jacksonville, Florida, who presided.

Nine papers were read and one presented by title. These papers concerned mainly the biology, incidence and cultivation of th malaria parasites, and the malaria problem in World War II.

Dr. Louis L. Williams, Jr., Washington, D. C., on behalf of the Society, presented as a gift a six-piece sterling silver tea service to Dr. Mark F. Boyd in recognition of his long service to the Society and of his contributions to the knowledge of malaria and its control.

After a brief intermission the Society held its business meeting, with the President, Dr. Boyd, presiding. The minutes of the 1945 annual meeting, held in Cincinnati, were approved as published in the Society's Journal. The Secretary-Treasurer reported a total of 504 members, representing a gain of 80 members. His report, together with the reports of the Editorial Board and of various committees, were accepted. The new Constitution and By-Laws of the Society were read, amended and adopted as amended.

Dr. Louis L. Williams, Jr., Washington, D. C., reported to the Society the progress being made by the Department of State and other interested groups in sponsoring and arranging for an "International Congress on Tropical Medicine and Malaria," probably to be held in 1948.

The Society adopted a resolution expressing the thanks and appreciation to the Southern Medical Association, the Dade County Medical Association, Miami, Everglades Hotel, and Mr. Fred Stutz for their interest and support in making the meetings a success. The Secretary was directed to send these resolutions.

Mr. Nelson Rector, for the Nominating Committee, presented the following nominations, these nominees being elected by the Society:

President, Mr. Mark D. Hollis, U. S. Public Health Service, Washington, D. C.
President-Elect—Dr. E. Harold Hinman, Tennessee Valley Authority, Wilson Dam, Alabama.
Vice-President—Dr. Wendell Gingrich, University of Texas School of Medicine, Galveston, Texas.
Secretary-Treasurer—Dr. Martin D. Young, U. S. Public Health Service, Columbia, South Carolina.

There being no further business, the meeting adjourned *sine die*.

WOMAN'S AUXILIARY TO THE SOUTHERN MEDICAL ASSOCIATION

Officers

President—Mrs. W. W. Potter, Concord, Tenn.
President-Elect—Mrs. Wiley R. Buffington, New Orleans, La.
First Vice-President—Mrs. W. W. Crawford, Hattiesburg, Miss.
Second Vice-President—Mrs. R. C. Haynes, Marshall, Mo.
Recording Secretary—Mrs. Philip E. Blackerby, Louisville, Ky.
Corresponding Secretary—Mrs. H. E. Christenberry, Knoxville, Tenn.
Treasurer—Mrs. W. A. Selman, Atlanta, Ga.
Historian—Mrs. William Hibbitts, Texarkana, Tex.
Parliamentarian—Mrs. John Pierpont Helmick, Fairmont, W. Va.
Chairmen of Standing Committees—
Research and Romance of Medicine—Mrs. U. G. McClure, Charleston, W. Va.
Resolutions—Mrs. H. Leslie Moore, Dallas, Tex.
Jane Todd Crawford—Mrs. Luther Bach, Florence, Ky.
Budget—Mrs. Olin S. Cofer, Atlanta, Ga.
Memorial—Mrs Frank N. Haggard, San Antonio, Tex.
Doctors Day—Mrs. E. C. Parker, Gulfport, Miss.
Custodian of Records—Mrs. Grace Stroud Fries, Louisville, Ky.
Jane Todd Crawford Memorial Fund—Mrs. A. T. McCormack, Louisville, Ky.

The twenty-second annual meeting of the Woman's Auxiliary to the Southern Medical Association was held at Miami, Florida, November 4-6, 1946, with the Columbus Hotel as headquarters.

Tuesday, November 5, 8:30 a.m.

The Executive Board met at breakfast at the Columbus Hotel, Biscayne Room, the President, Mrs. W. W. Potter, presiding. There were twenty-two present.

Among the guests were Mrs. Jesse D. Hamer, President, Woman's Auxiliary to American Medical Association, Phoenix, Arizona; Mrs. C. H. Murphy, President, Woman's Auxiliary to Florida State Medical Association, Bartow, Florida; Mrs. W. Carlton Rentz, Jr., President, Woman's Auxiliary to the Dade County Medical Association and General Chairman for Ladies Entertainment, Miami Meeting, Miami, Florida; and Dr. Seale Harris, Birmingham, Alabama. Sitting with the President was Mrs. W. R. Buffington, President-Elect, Woman's Auxiliary to the Southern Medical Association, New Orleans, Louisiana.

Mrs. E. H. Carey, Past President, Woman's Auxiliary to Southern Medical Association, Dallas, Texas, gave the invocation.

In the absence of the Parliamentarian, Mrs. John P. Helmick, Fairmont, West Virginia, Mrs. Joseph W. Kelso, Oklahoma City, Oklahoma, acted as Parliamentarian, and in the absence of the Recording Secretary, Mrs. P. E. Blackerby, Louisville, Kentucky, Mrs. E. L. Henderson, Louisville, acted as Recording Secretary.

Minutes of post-convention meeting were read and approved.

The Treasurer, Mrs. W. A. Selman, Atlanta, Georgia, gave her report which was referred to an Auditing Committee consisting of Mrs. Olin S. Cofer, Chairman, Atlanta, Georgia; Mrs. H. E. Christenberry, Knoxville, Tennessee; and Mrs. John W. Turner, Atlanta, Georgia. Report of the Treasurer of the Jane Todd Crawford Fund, Mr. C. P. Loranz, showed a total of $2,202.65, of this $1,813.00 is in United States Government Bonds and $389.65 is on deposit in a savings account in the First National Bank, Birmingham, in the name of the Woman's Auxiliary, Southern Medical Association.

Mrs. Olin S. Cofer, Chairman, Budget Committee, presented budget of $250.00, the amount paid to the Auxiliary by the Southern Medical Association. Budget approved.

Mrs. A. T. McCormack, Chairman of Jane Todd Crawford Memorial Fund, a Past President of the Woman's Auxiliary to the Southern Medical Association, Louisville, Kentucky, presented a report for her Committee outlining plans for loaning of the fund. Plans were accepted and the same Committee continued, Mrs. A. T. McCormack, Chairman, Louisville, Kentucky; Mrs. J. Ullman Reaves, Mobile, Alabama; and Mrs. Oscar M. Marchman, Dallas, Texas.

To serve with Mrs. H. Leslie Moore, Chairman of Resolutions Committee, Dallas, Texas, the President appointed Mrs. Henry A. Callaway, Marysville, Tennessee, and Mrs. Harry M. Gilkey, Kansas City, Missouri.

The following Nominating Committee was appointed: Mrs. J. Ullman Reaves, Chairman, Mobile, Alabama; Mrs. W. J. Barge, Miami, Florida; Mrs. Ollie McBride, Ada, Oklahoma; and Mrs. Arthur A. Herold, Shreveport, Louisiana.

Dr. Seale Harris, Birmingham, Alabama, gave an interesting talk. After announcements by the General Chairman, Mrs. W. Carlton Rentz, Jr., Miami, the Board meeting adjourned.

Tuesday, November 5, 10:30 a.m.

The Auxiliary met at White Temple, Miami, and was called to order by the President, Mrs. W. W. Potter, who presided.

Rev. Glen C. James, Pastor of White Temple, Miami, delivered the invocation.

Addresses of welcome were given by Mrs. W. Carlton Rentz, Jr., President, Woman's Auxiliary to Dade County Medical Association, Miami, and Mrs. C. H. Murphy, President, Woman's Auxiliary to Florida State Medical Association, Bartow, Florida. Mrs. J. Ullman Reaves, Past President, Woman's Auxiliary to the Southern Medical Association, Mobile, Alabama, responded to the addresses of welcome.

Greetings from the Advisory Council of the Southern Medical Association were brought by Dr. J. B. Lukins, Louisville, Kentucky. Dr. Harrison H. Shoulders, President, American Medical Association, Nashville, Tennessee, and Dr. George F. Lull, Secretary and General Manager, American Medical Association, Chicago, Illinois, both spoke briefly on the importance of the work of the woman's auxiliary.

Mrs. Jesse D. Hamer, President, Woman's Auxiliary to the American Medical Association, Phoenix, Arizona, and Mrs. W. R. Buffington, President-Elect, Woman's Auxiliary to the Southern Medical Association, New Orleans, Louisiana, were presented.

Mrs. James L. Anderson, Miami, General Co-Chairman, made some announcements.

In the absence of Mrs. Frank N. Haggard, Chairman of the Memorial Committee, a Past President of the Woman's Auxiliary to the Southern Medical Association, San Antonio, Texas, Mrs. J. Ullman Reaves, Past President, Woman's Auxiliary to Southern Medical Association, Mobile, Alabama, conducted the In Memoriam Service which included two Past Presidents, Mrs. Southgate Leigh, Norfolk, Virginia, and Mrs. D. J. Williams, Gulfport, Mississippi. Mrs. Haggard sent flowers for the memorial services. Dr. Seale Harris, Birmingham, Alabama, sent flowers in memory of his wife, who was the organizer of the Woman's Auxiliary to Southern Medical Association and the second President of the Woman's Auxiliary to American Medical Association.

The meeting then adjourned.

Tuesday, November 5, 1:00 p.m.

The Auxiliary met for its Annual Luncheon at the Columbus Hotel, Biscayne Room, the President, Mrs. W. W. Potter, presiding.

Among those present and introduced were Dr. Harrison H. Shoulders, President, American Medical Association, and Mrs. Shoulders, Nashville, Tennessee; Mrs. Jesse D. Hamer, President, Woman's Auxiliary to the American Medical Association, Phoenix, Arizona; Dr. George F. Lull, Secretary and General Manager, American Medical Association, and Mrs. Lull, Chicago, Illinois; Dr. R. L. Sensenich, Chairman, Board of Trustees, American Medical Association, South Bend, Indiana; Mrs. W. R. Buffington, President-Elect, Woman's Auxiliary to the Southern Medical Association, New Orleans, Louisiana; Dr. Seale Harris, Birmingham, Alabama; and Dr. W. W. Potter, Knoxville, Tennessee. Dr. Herbert Acuff, President, International College of Surgeons, Knoxville, Tennessee, gave an address entitled "Cancer Problems of the South."

Mrs. Carl E. Dunaway, Chairman of the Luncheon Committee, reported four hundred present at this luncheon meeting, the maximum number that could be handled at the Columbus Hotel, with an additional one hundred at the Roney Plaza Hotel, Miami Beach, with Mrs. Otto S. Dowlen, Miami, as Chairman.

A fashion show was presented at both the Columbus Hotel and the Roney Plaza Hotel under the direction of Mrs. James L. Anderson, General Co-Chairman, Miami.

Wednesday, November 6, 9:30 a.m.

The Auxiliary met for its concluding session at White Temple, Miami, the President, Mrs. W. W. Potter, presiding.

Mrs. Charles E. Oates, Past President, Woman's Auxiliary to Southern Medical Association, Little Rock, Arkansas, gave the invocation.

Mrs. L. M. Jenkins, Miami, Chairman of Registration Committee, reported a total registration of 560. Reports from officers and chairmen of standing committees were received and accepted. Members of the Council of the Woman's Auxiliary to Southern Medical Association made reports. Mrs. James L. Anderson, General Co-Chairman, Miami, announced plans for the afternoon.

Mrs. H. Leslie Moore, Chairman of Resolutions Committee, Dallas, Texas, presented courtesy resolutions which were accepted as read.

Mrs. Olin S. Cofer, Atlanta, Georgia, and Mrs. Joseph W. Kelso, Oklahoma City, Oklahoma, reported on the meeting of the Woman's Auxiliary to American Medical Association held in San Francisco in July.

Dr. M. Y. Dabney, President, Southern Medical Association, Birmingham, Alabama, brought greetings from the Association.

Mrs. Jesse D. Hamer, President, Woman's Auxiliary to the American Medical Association, Phoenix, Arizona, gave an interesting talk on the aims and plans of the national auxiliary.

Mrs. J. Ullman Reaves, Chairman of the Nominating Committee, Mobile, Alabama, presented the following report for the Committee, the nominees being elected by acclamation:

President—Mrs. Wiley R. Buffington, New Orleans, Louisiana.
President-Elect—Mrs. Olin S. Cofer, Atlanta, Georgia.
First Vice-President—Mrs. Joseph W. Kelso, Oklahoma City, Oklahoma.
Second Vice-President—Mrs. Arthur L. Walters, Miami Beach, Florida.
Treasurer—Mrs. H. Leslie Moore, Dallas, Texas.
Recording Secretary—Mrs. Henry C. Ricks, Jackson, Mississippi.
Corresponding Secretary—Mrs. Carroll F. Gelbke, Gretna, Louisiana.
Parliamentarian—Mrs. H. E. Christenberry, Sr., Knoxville, Tennessee.
Historian—Mrs. Harry M. Gilkey, Kansas City, Missouri.

Mrs. Arthur A. Herold, Past President, Woman's Auxiliary to

Southern Medical Association, Shreveport, Louisiana, installed the newly elected officers.

Mrs. W. W. Potter, retiring President, presented the gavel to the incoming President, Mrs. W. R. Buffington, New Orleans, Louisiana, who announced a meeting of the Executive Board.

The meeting then adjourned.

Wednesday, November 6

The post-convention meeting of the Executive Board was held immediately following the conclusion of the General Session, Mrs. Wiley R. Buffington, President, New Orleans, Louisiana, presiding.

There was a discussion of plans for the next year's work, stress to be laid upon the three projects which have been adopted for special consideration: (1) Doctors' Day, (2) Research and Romance of Medicine, and (3) Jane Todd Crawford Memorial Fund.

The President announced the following Chairmen of Standing Committees (All are members of the Executive Board):

Budget—Mrs. Chas. E. Kitchens, DeQueen, Arkansas.
Jane Todd Crawford—Mrs. Gilbert F. Douglass, Birmingham, Alabama.
Research and Romance of Medicine—Mrs. U. G. McClure, Charleston, West Virginia.
Resolutions—Mrs. Arthur A. Herold, Shreveport, Louisiana.
Doctors' Day—Mrs. Harvey F. Garrison, Sr., Jackson, Mississippi.
Memorial—Mrs. Edgar H. Greene, Atlanta, Georgia.
Custodian of Records—Mrs. E. Latane Flanagan, Richmond, Virginia.
Jane Todd Crawford Memorial Fund—Mrs. A. T. McCormack, Louisville, Kentucky.

The President announced the following appointment of Councilors for a term of three years, to expire 1949 (All are members of the Executive Board):

Oklahoma—Mrs. Ollie McBride, Ada
South Carolina—Mrs. Vance W. Brabham, Orangeburg
Tennessee—Mrs. W. O. Baird, Henderson
Texas—Mrs. Cecil O. Patterson, Dallas
Virginia—Mrs. P. M. Chichester, Richmond
West Virginia—Mrs. Ralph S. McLaughlin, Charleston

COUNCIL, Woman's Auxiliary to the Southern Medical Association

(All are Members of the Executive Board)

Expire 1947—
Alabama—Mrs. O. R. Grimes, Gadsden.
Arkansas—Mrs. L. G. Fincher, El Dorado.
District of Columbia—Mrs. Oscar B. Hunter, Washington.
Florida—Mrs. F. W. Krueger, Jacksonville.
Georgia—Mrs. Edgar H. Greene, Atlanta.

Expire 1948—
Kentucky—Mrs. Wm. McDaniel Ewing, Louisville.
Louisiana—Mrs. George J. Taquino, New Orleans.
Maryland—
Mississippi—Mrs. V. B. Philpot, Holly Springs.
Missouri—Mrs. George H. Thiele, Kansas City.
North Carolina—Mrs. Clyde R. Hedrick, Lenoir.

LIVING PAST PRESIDENTS, Woman's Auxiliary to the Southern Medical Association

(All are Members of the Executive Board)

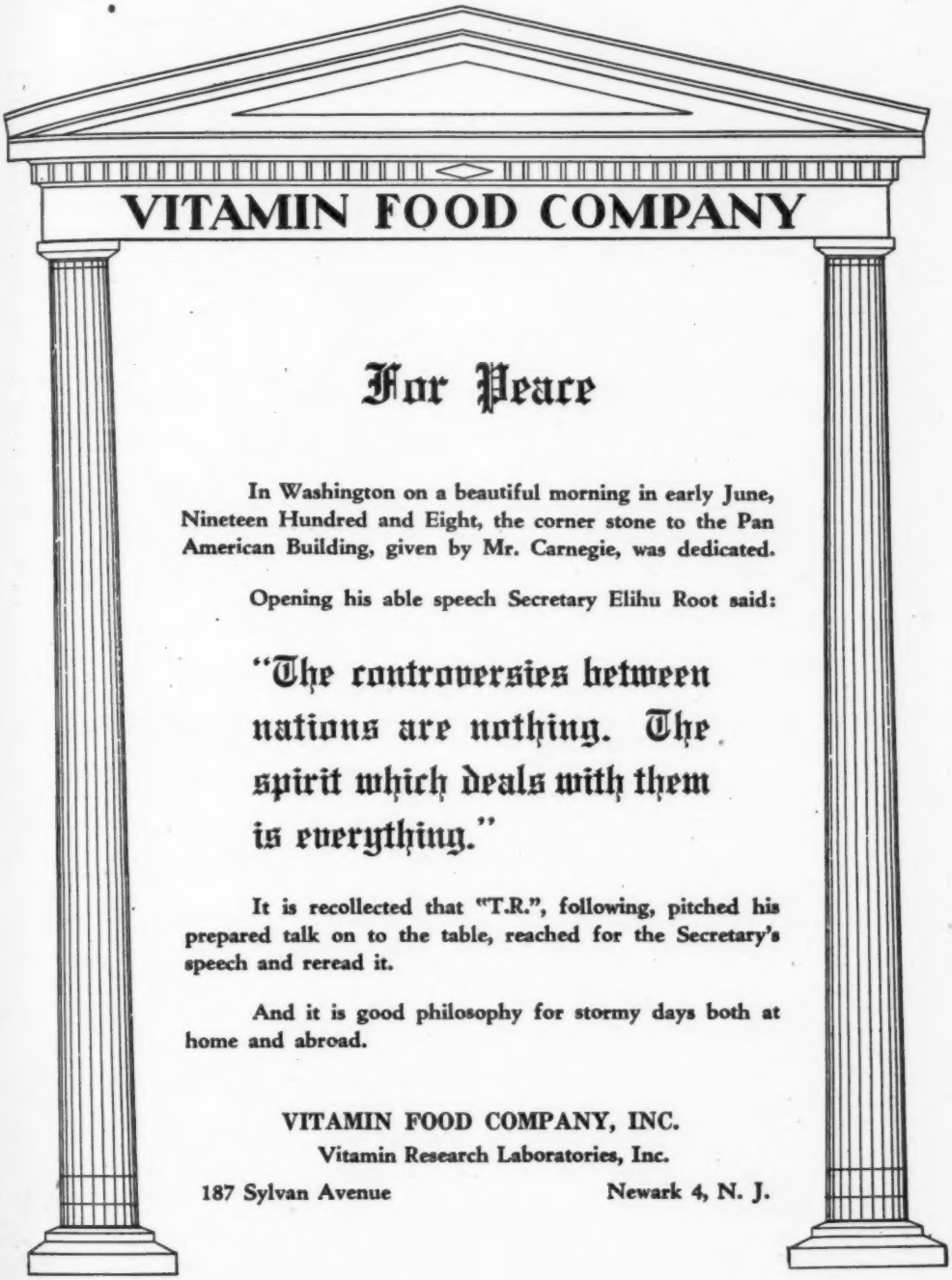
1925, Mrs. E. H. Cary, Dallas, Tex.
1927, Mrs. Oscar M. Marchman, Dallas, Tex.
1928, Mrs. Arthur T. McCormack, Louisville, Ky.
1929, Mrs. C. W. Garrison, Little Rock, Ark.
1930, Mrs. James N. Brawner, Sr., Atlanta, Ga.
1931, Mrs. S. A. Collom, Sr., Texarkana, Tex.
1932, Mrs. Chas. E. Oates, Little Rock, Ark.
1933, Mrs. Arthur A. Herold, Shreveport, La.
1936, Mrs. Oliver W. Hill, Sr., Knoxville, Tenn.
1937, Mrs. Frank N. Haggard, San Antonio, Tex.
1938, Mrs. Luther Bach, Florence, Ky.
1939, Mrs. W. K. West, Oklahoma City, Okla.
1940, Mrs. Charles P. Corn, Greenville, S. C.
1941, Mrs. M. Pinson Neal, Columbia, Mo.
1942, Mrs. J. Ullman Reaves, Mobile, Ala.
1943, Mrs. Richard H. Clark, Hattiesburg, Miss.
1944-1945, Mrs. John Pierpont Helmick, Fairmont, W. Va.
1946, Mrs. W. W. Potter, Concord, Tenn.

TECHNICAL EXHIBITS

Miami Auditorium

Here follow the names of the firms who had exhibits at the Miami meeting and their space number:

	Space No.
Abbott Laboratories, North Chicago, Ill.	50
Aloe Company, A. S., St. Louis, Mo.	31-32-33
American Hospital Supply Corporation, Chicago, Ill.	68
American Optical Company, Southbridge, Mass.	75-76
Ames Company, Inc., Elkhart, Ind.	58
Armour Laboratories, The, Chicago, Ill.	61-62
Ayerst, McKenna and Harrison, Ltd., New York, N. Y.	59
Bard-Parker Company, Inc., Danbury, Conn.	10
Bilhuber-Knoll Corporation, Orange, N. J.	9
Borden Company, The, New York, N. Y.	73
Bristol Laboratories, Inc., New York, N. Y.	70
Burdick Corporation, The Milton, Wis.	80
Burroughs Wellcome and Company, Inc., Tuckahoe, N. Y.	37
Camp and Company, S. H., Jackson, Mich.	17
Carnation Company, Oconomowoc, Wis.	64
Ciba Pharmaceutical Products, Inc., Summit, N. J.	69
Davis & Geck, Inc., Brooklyn, N. Y.	71
Doho Chemical Corporation, The, New York, N. Y.	8
Eastman Kodak Company, Rochester, N. Y.	29
Eaton Laboratories, Inc., Norwich, N. Y.	4
Foley Manufacturing Company, Minneapolis, Minn.	1
General Electric X-Ray Corporation, Chicago, Ill.	12-13
Gradwohl Laboratories, St. Louis, Mo.	38
Hoeber, Inc., Paul B., New York, N. Y.	21
Hoffmann-LaRoche, Inc., Nutley, N. J.	47
Johnson and Johnson, New Brunswick, N. J.	22
Junket Brand Foods, Division of Chr. Hansen's Laboratory, Inc., Little Falls, N. Y.	36
Lea and Febiger, Philadelphia, Pa.	19
Lederle Laboratories, Inc., New York, N. Y.	14
Lilly and Company, Eli, Indianapolis, Ind.	5-6-7
Lippincott Company, J. B., Philadelphia, Pa.	40
M & R Dietetic Laboratories, Inc., Columbus, Ohio	60
Majors Company, J. A., New Orleans and Dallas	26
McNeil Laboratories, Inc., Philadelphia, Pa.	65
Mead Johnson and Company, Evansville, Ind.	15
Medical Bureau, The, Chicago, Ill.	55
Merck and Company, Inc., Rahway, N. J.	34-35
Merrell Company, The Wm. S., Cincinnati, Ohio	23-24
Mosby Company, The C. V., St. Louis, Mo.	48-49
National Drug Company, Philadelphia, Pa.	67
Nepera Chemical Company, Inc., Yonkers, N. Y.	56
Nutrition Research Laboratories, Chicago, Ill.	27-28
Ortho Pharmaceutical Corporation, Linden, N. J.	39
Parke, Davis and Company, Detroit, Mich.	81-82-83
Poythress and Company, Inc., Wm. P., Richmond, Va.	46
Riedel-de Haen, Inc., New York, N. Y.	57
Roerig and Company, J. B., Chicago, Ill.	20
Saunders Company, W. B., Philadelphia, Pa.	25
Sandoz Chemical Works, Inc., New York, N. Y.	72
Schenley Laboratories, Inc., New York, N. Y.	54
Schering Corporation, Bloomfield, N. J.	16
Searle and Company, G. D., Chicago, Ill.	52-53
Sharp and Dohme, Philadelphia, Pa.	43-44-45
Smith, Kline and French Laboratories, Philadelphia, Pa.	18
Spencer Incorporated, New Haven, Conn.	51
Squibb & Sons, E. R., New York, N. Y.	30
Stearns and Company, Frederick, Detroit, Mich.	63
U. S. Vitamin Corporation, New York, N. Y.	74
Varick Pharmacal Company, New York, N. Y.	66
Warner and Company, Inc., Wm. R., New York, N. Y.	2
White Laboratories, Inc., Newark, N. J.	41-42
Winthrop Chemical Company, New York, N. Y.	77-78-79
Wyeth Incorporated, Philadelphia, Pa.	11
Zimmer Manufacturing Company, Warsaw, Ind.	3



VITAMIN FOOD COMPANY

For Peace

In Washington on a beautiful morning in early June, Nineteen Hundred and Eight, the corner stone to the Pan American Building, given by Mr. Carnegie, was dedicated.

Opening his able speech Secretary Elihu Root said:

"The controversies between nations are nothing. The spirit which deals with them is everything."

It is recollected that "T.R.", following, pitched his prepared talk on to the table, reached for the Secretary's speech and reread it.

And it is good philosophy for stormy days both at home and abroad.

VITAMIN FOOD COMPANY, INC.
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Continued from page 91

Dr. J. Archer O'Reilly, St. Louis, has been named Chairman of the Board of the Missouri Society of Crippled Children.

Dr. Frank R. Bradley, St. Louis, has been installed President, American College of Administrators.

DEATHS

Dr. Harry G. Greditzer, St. Louis, aged 57, died recently.
Dr. Paul F. Hunt, Kansas City, aged 49, died recently.
Dr. Edmond Bonnott, St. Louis, aged 70, died recently.
Dr. Joseph Scott Snider, Kansas City, aged 70, died recently.

NORTH CAROLINA

Tenth District Medical Society has elected Dr. Frank Howard Richardson, Black Mountain, President; Dr. V. P. Duckett, Canton, First Vice-President; Dr. William N. Fortescue, Henderson, Second Vice-President; Dr. Paul McBee, Marion, Third Vice-President; Dr. C. N. Burton, Asheville, Fourth Vice-President; and Dr. D. M. McIntosh, Jr., Marion, Secretary-Treasurer.

Dr. Robert G. Holt, Lexington, is taking a postgraduate course in ophthalmology at Harvard Medical School, Boston, Massachusetts.

Dr. John M. Andrew, Lexington, is at Cook County Hospital, Chicago, where he has a year's fellowship in radiology.

Dr. Paul G. Reque, formerly at Duke University School of Medicine, is practicing dermatology and syphilology at Birmingham, Alabama, and is on the faculty of The Medical College of Alabama.

Dr. Verne S. Caviness, Raleigh, is associated with Dr. William A. Withers in the practice of internal medicine.

Dr. Frank Peter Ilasi, Brooklyn, New York, has been appointed Senior Physician in Tuberculosis at the Veterans Administration Tuberculosis Hospital, Oteen.

Dr. Harry E. Walkup, Baltimore, Maryland, has joined the thoracic surgery service of the Veterans Administration Hospital, Oteen.

Moore General Hospital, Swannanoa, was released by the Army on November 15, 1946 and the Veterans Administration may take it over.

Dr. Frank Cutchin Bone, Rocky Mount, and Miss Margaret Leigh Lowrance, Durham, were married recently.

DEATHS

Dr. Herbert G. Perry, Louisburg, aged 57, died recently of heart disease.

Dr. David A. Stanton, High Point, aged 87, died recently of cardiovascular renal disease.

OKLAHOMA

The Sixth Annual Conference for County Medical Society Officers, discontinued during the war, was revived with a meeting held at the Skirvin Hotel, Oklahoma City, and newly elected officers are Dr. Everett King, Duncan, President; and Dr. Neil Burleson, Prague, Secretary.

State Department of Health has appointed the following as health officers: Dr. George Winn, Lawton, County Superintendent of Health, Comache County; Dr. James K. Gray, Tahlequah, Acting Director, Kay County Health Department; Dr. J. Walter Hough, Acting Director, Ottawa County Health Department; Dr. J. M. Gordon, Ardmore, County Superintendent of Health, Carter County; Dr. W. W. Cotton, Atoka, County Superintendent of Health, Atoka County; and Dr. Alfred R. Sugg, Ada, County Superintendent of Health, Pontotoc County.

Dr. J. R. Hinshaw, Butler, has resumed his post as Director, Pittsburg County Health Department.

Dr. Paul Powell has resigned as Director, Kay County Health Unit.

Dr. Robert O. Ryan, formerly of Fairview, has joined the staff of Oklahoma A & M College Infirmary, bringing the total of physicians to five: Dr. Betty Conrad, Sapulpa; Dr. Roxie A. Webber, Assistant Director; Dr. John F. Reardon; and Dr. J. O. Thomson, Director of the Student Health Service.

Dr. John Y. Battenfield, formerly Director of the University of Oklahoma Student Health Service, Oklahoma City, has joined the staff of a Firestone Plantation Company in Liberia, West Africa.

Dr. James O. Hood, Norman, succeeds Dr. John Y. Battenfield as Director, University of Oklahoma Student Health Service.

Dr. D. W. Griffin, Norman, is beginning his forty-eighth year as Superintendent, Central State Hospital.

Dr. H. M. McClure, Chickasha, has purchased Dr. D. S. Downey's interest in the Chickasha Hospital and Clinic. Dr.

Continued on page 64

GILL MEMORIAL EYE, EAR AND THROAT HOSPITAL

Announces its Twentieth Annual Spring Graduate Course in Ophthalmology, Otology, Rhinology, Laryngology, Facio-Maxillary Surgery, Bronchoscopy and Esophagoscopy, from April 7th to 12th, 1947.

THE FACULTY

GUEST MEMBERS

Dr. A. J. Ballantyne	Glasgow, Scotland	Dr. Chester S. Keefer	Boston, Massachusetts
Dr. Arthur J. Bedell	Albany, New York	Dr. Raymond E. Meek	New York, New York
Dr. William P. Beetham	Boston, Massachusetts	Dr. R. Townley Paton	New York, New York
Dr. Eugene M. Blake	New Haven Connecticut	Dr. Lyman G. Richards	Boston, Massachusetts
Dr. E. B. Burchell	New York, New York	Dr. John R. Richardson	Boston, Massachusetts
Dr. Russell N. DeJong	Ann Arbor, Michigan	Dr. Bernard Samuels	New York, New York
Dr. Murdock Equen	Atlanta, Georgia	Dr. John M. Sheldon	Ann Arbor, Michigan
Dr. William T. Hunt	Philadelphia, Pennsylvania	Dr. C. R. Straatsma	New York, New York
Dr. Chevalier L. Jackson	Philadelphia, Pennsylvania	Dr. O. E. Van Alyea	Chicago, Illinois

For further information address Superintendent

Gill Memorial Eye, Ear and Throat Hospital - - - Box 2467, Roanoke, Va.

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You'll find this same precision in everything Kodak makes. For Kodak production . . . whether it's photographic or radiographic . . . is subject to complete quality control . . . rigid inspection . . . constant research. . . . Eastman Kodak Company, *Medical Division*, Rochester 4, N. Y.

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Serving Medical Progress through Photography and Radiography

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Post-Graduate Course In Ophthalmology

7th Annual Wm. Thornwall Davis Post-Graduate Course in Ophthalmology

Monday, February 3rd, through Saturday, February 8th, 1947

THE GEORGE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE

WASHINGTON, D. C.

GUEST LECTURERS

Dr. F. Heed Adler, Philadelphia, Dr. J. Mason Baird, Atlanta, Ga., Dr. S. Judd Beach, Portland, Maine, Dr. Hermann M. Burian, Boston, Mass., Dr. Ramon Castroviejo, New York City, Dr. C. Alvin Clapp, Baltimore, Dr. F. Bruce Fralick, Ann Arbor, Mich., Dr. Deane B. Judd, Washington, D. C., Dr. Peter C. Kronfeld, Chicago, Ill., Dr. Walter I. Lillie, Philadelphia, Dr. Angus L. MacLean, Baltimore, Mr. Philip L. Salvatori, New York City, Dr. Harold G. Scheie, Philadelphia, Dr. Edmund B. Spaeth, Philadelphia, Dr. Frederick W. Stocker, Durham, N. C.

FEE: $50.00. Hotel accommodations reserved at Hotel Washington

For further details of the Post-graduate Courses in Ophthalmology, write to the Secretary, Mary Everist Kramer, Suite 34, 1801 K Street N. W., Washington 6, D. C.

(Continued from page 62

Downey, one of the founders, will continue his association with the hospital.

DEATHS

Dr. Eric Knox Collier, Tipton, aged 43, died recently.
Dr. Frank M. Gaines, Verden, aged 86, died recently.
Dr. Edward Brent Mitchell, Lawton, aged 78, died recently.

SOUTH CAROLINA

Dr. Gertrude R. Holmes, Greenville, released from service with the rank of Captain, has been appointed one of ten outstanding women doctors as Consultant on Medical Care for Women Veterans for the Atlanta, Georgia, Branch Office, serving South Carolina, Georgia, Florida, Alabama and Tennessee.

Dr. Kenneth Hill Herbert, Mount Pleasant, and Miss Stella Virginia Pope, Dade City, were married recently.

Dr. Thomas Marion Davis, Columbia, and Miss Adelle Davis, Savannah, Georgia, were married recently.

TENNESSEE

Mid-South Post Graduate Medical Assembly will hold its 58th annual convention at the Hotel Peabody, Memphis, February 11-14.

Dr. Ernest W. Goodpasture, Pathologist and Dean, Vanderbilt University School of Medicine, Nashville, was recently presented an award, made annually to distinguished members of the Kappa Sigma Fraternity, as its "the man of the year."

Dr. John M. Weir, Jr., formerly of New York City, has been named Health Officer, Obion-Lake County Health Unit.

Dr. Price H. Duff, formerly of Crossville, has been appointed Health Officer, Rutherford County, Murfreesboro.

Dr. Walter C. Humbert, Erwin, has been appointed Director, Giles and Lincoln Counties.

Dr. George K. Henshall, Jr., Chattanooga, has been named Director, Division of Maternal and Child Health, Chattanooga-Hamilton County Health Department, succeeding Dr. Rutherford O. Ingham.

Continued on page 66

THE NEW YORK POLYCLINIC

MEDICAL SCHOOL AND HOSPITAL

(ORGANIZED 1881)

(*The Pioneer Post-Graduate Medical Institution in America*)

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A combined full time course in Urology, covering an academic year (8 months). It comprises instruction in pharmacology; physiology; embryology; biochemistry; bacteriology and pathology; practical work in surgical anatomy and urological operative procedures on the cadaver; regional and general anesthesia (cadaver); office gynecology; proctological diagnosis; the use of the ophthalmoscope; physical diagnosis; roentgenological interpretation; electrocardiographic interpretation; dermatology and syphilology; neurology; physical therapy; continuous instruction in cysto-endoscopic diagnosis and operative instrumental manipulation; operative surgical clinics; demonstrations in the operative instrumental management of bladder tumors and other vesical lesions as well as endoscopic prostatic resection.

Physical Medicine

Didactic lectures and active clinical application of all present-day methods of physical therapy in internal medicine, general and traumatic surgery, gynecology, urology, dermatology, neurology and pediatrics. Special demonstrations in minor electrosurgery, electrodiagnosis, fever therapy, hydrotherapy, including colonic therapy, light therapy.

FOR INFORMATION ADDRESS

MEDICAL EXECUTIVE OFFICER, 345 West 50th Street, NEW YORK 19, N.Y.

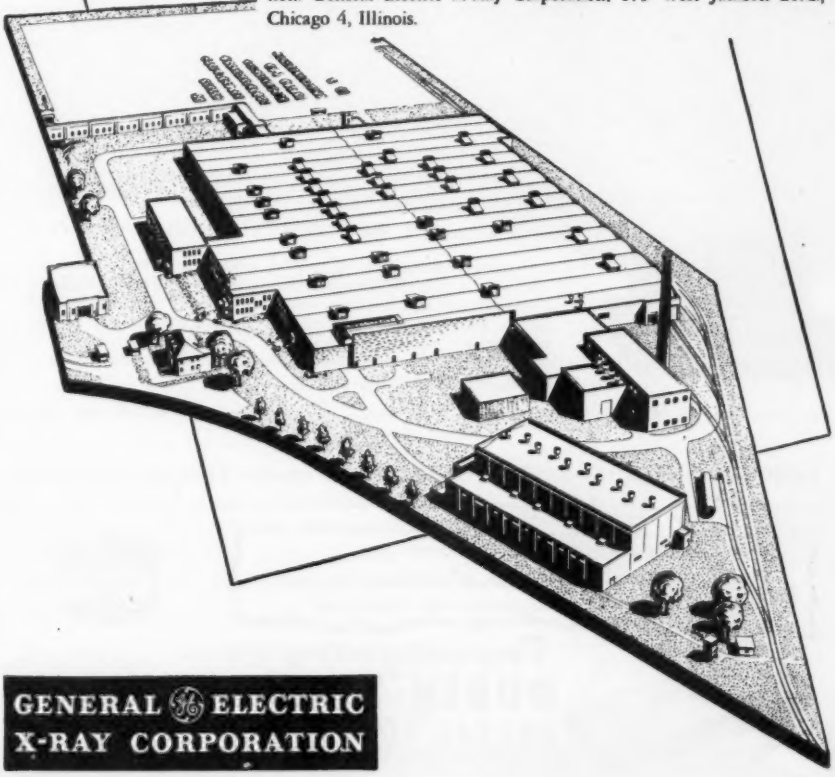
43-ACRE REMEDY FOR GROWING PAINS

We think it's a healthy sign when a 51-year-old organization has growing pains. And our remedy is the purchase of a new 43-acre plant located in Milwaukee. It includes adequate provision for expanding production and accelerating engineering research and development of radiographic and therapeutic apparatus.

Important to you is the fact that the move from Chicago to Milwaukee will mean no interruption of the production schedules established to meet present delivery promises.

Our Chicago plant will continue to run at full capacity. The Milwaukee plant, already in operation, will gradually assume an increasing share of the manufacturing load.

Here, in this modern manufacturing facility, is concrete evidence of our plans to meet present and future demands of your profession. And your demands will be met without sacrificing the high quality and efficiency that have always characterized the products of this organization. General Electric X-Ray Corporation, 175 West Jackson Blvd., Chicago 4, Illinois.



GENERAL ELECTRIC
X-RAY CORPORATION

Continued from page 64

Dr. Howard Hunter Nichols, Nashville, and Miss Betty Jane Martin, Jackson, Mississippi, were married recently.

Dr. James Oscar Hale, Jr., Erwin, and Miss Emily Ruth Borden, Greenville, were married recently.

Deaths

Dr. James Roderick Butler, Mountain City, aged 57, died recently of carcinoma.

Dr. Robert A. Range, Elizabethton, aged 72, died recently of cerebral hemorrhage.

Dr. Thomas McPherson Roberts, Sweetwater, aged 77, died recently of carcinoma of the liver.

Dr. Payne Alexander Tinsley, Dandridge, aged 80, died recently of heart disease

TEXAS

International Postgraduate Medical Assembly of Southwest Texas will hold its first assembly meeting since the war on January 29-31 in the Municipal Auditorium, San Antonio. Dr. A. Fletcher Clark, San Antonio, is President.

Dr. Jack R. Ewalt, Galveston, was elected Vice-President of the Central Neuropsychiatric Association which met in Denver, Colorado, recently.

Members of the Board of Trustees of the Dallas Health Museum, launched by the Dallas Academy of Medicine, are: Dr. V. R. Hurst, Longview, Dr. Wilfred J. Allison, Dr. H. R. Levy, Dr. Oscar M. Marchman, Sr., Dr. Everett C. Fox, Dr. Milford O. Rouse, Dr. J. W. Bass, Dr. Horace E. Duncan and Dr. J. M. Pickard, all of Dallas, the latter three ex-officio.

Dr. Arild E. Hansen, Galveston, Chairman of the University of Texas Child Health Program has been renamed Chairman of the Texas Child Health Council; and Dr. T. J. McElhenney, Austin, was elected Vice-Chairman.

Veteran Administration Hospitals in Texas, Louisiana, and Mississippi have received through the generosity of the Texas Variety Club, more than $7,000 worth of movie equipment designed for bedridden patients.

Continued on page 68

LaMOTTE BLOOD CHEMISTRY SERVICE

This service consists of a series of accurate, simplified control outfits for conducting the following tests:

Albumin and Sugar in Urine
*Alcohol in Blood and Urine
Alveolar Air CO_2 Tension
Bilirubin in Blood
Blood Loss in Body Fluids
Bromides in Blood
Calcium-Phosphorus in Blood
Chlorides in Blood
Cholesterol in Blood
Creatinine in Blood
*Densiometer (Large)
*Densiometer (Small)
Gastric Acidity
Hemoglobinometer
Icterus (Pigford)
Icterus (Micro)
*Kline Test for Syphilis
pH of Blood
pH of Urine
P.S.P. (Block Type)
*P.S.P. (Roulette Type)
Sugar in Blood
Sugar in Urine
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Urea in Blood
Urea in Urine
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Vitamin C in Blood & Urine

The above tests can be supplied in separate units or, with the exception of the larger units (*), in combination form.

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For rapid estimation of blood sugar in determining sugar tolerance for diabetic patient. Uses only few drops of finger blood. Permits tests at close intervals. Invaluable for infant cases. Accurate to 10 mg. of sugar per 100 cc. of blood. Direct results without calculations. Only 20 minutes required for complete test. Complete with instructions, price $24.00 f.o.b. Towson, Baltimore, Maryland.

If you do not have the LaMotte Blood Chemistry Handbook, a complimentary copy will be sent upon request without obligation.

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"very satisfactory ... in securing prompt and prolonged relief" *in bronchial asthma,* says Dees (J. Allergy 14:492, 1943) of Aminophyllin rectal suppositories.

ACCEPTED AMERICAN MEDICAL ASSN.

Very satisfactory are...

DUBIN AMINOPHYLLIN

RECTAL SUPPOSITORIES (0.36 Gm. each)

Dubin Aminophyllin (theophylline-ethylenediamine) also in Tablets, Ampuls, Powder for rapid action in many indicated cardio-respiratory conditions.

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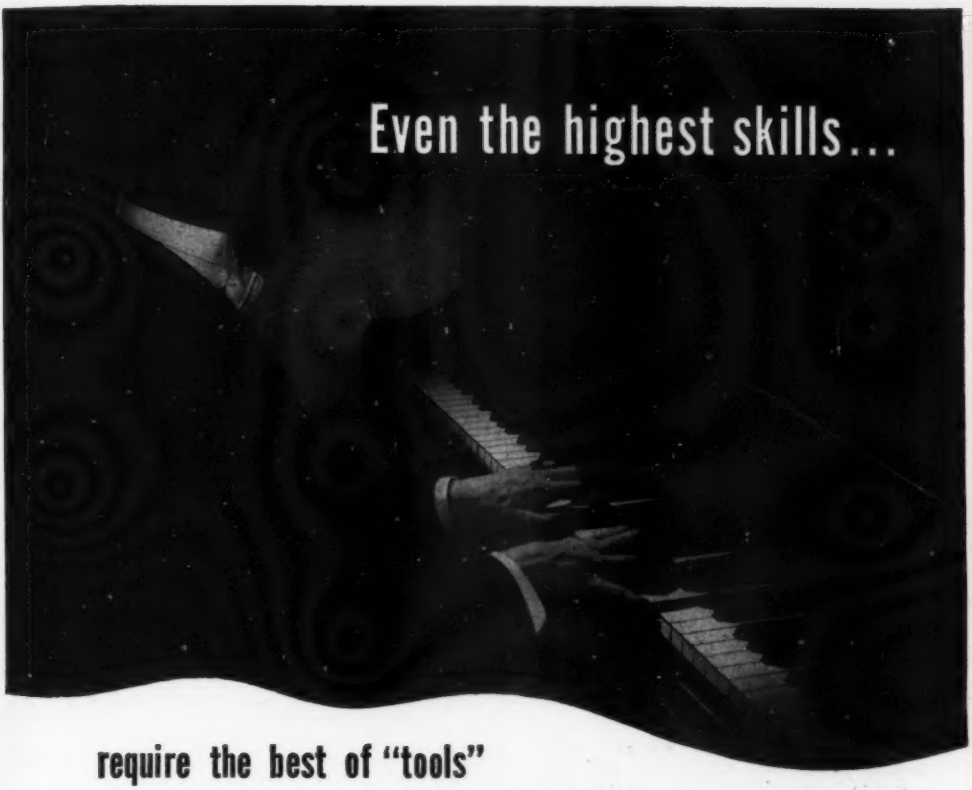
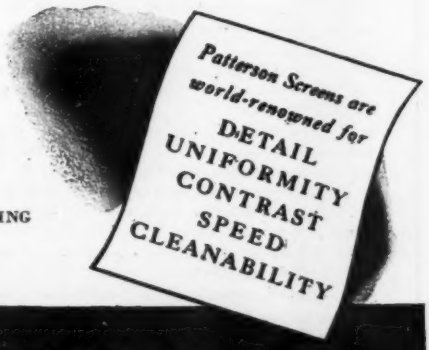


require the best of "tools"

AT FIRST NOTE the great pianist recognizes the quality of a truly fine instrument. So, too, the roentgenologist recognizes fine equipment as essential to express his high skill in the diagnostic radiograph.

That is why most of the world's roentgenologists rely on Patterson Intensifying Screens. That is why Patterson has been the standard of screen quality for more than 30 years.

Your dealer has a complete stock. Patterson Screen Division, E. I. du Pont de Nemours & Co. (Inc.), Towanda, Pennsylvania.



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BETTER THINGS FOR BETTER LIVING
... *THROUGH CHEMISTRY*
(Listen to "Cavalcade of America"—
Monday Evenings, NBC)

Patterson Screens

The Standard of Screen Quality

M. BURNEICE LARSON, DIRECTOR

. . Time . . to do the things you want to do.

Would you team with another? Isn't that a way to release to you a goodly portion of this flying thing called TIME?

If it could, it would give you extra hours in every day, and extra days in every month . . . wouldn't that be reason enough to take on an assistant, an associate?

There's never time enough to live as you'd like to live; how could there be? There's never time enough to do as you'd like to do; how could there be that? Sometimes, for whole lifetimes, there's never time to play, nor for leisure, nor for any thing other than work.

But despite the way that TIME roars past us, despite the way it leaves us bewildered, tired, sometimes disillusioned . . . there is a way that men have found to wrest more time from life and use it for the purposes that give a finer life.

Men in business . . . team together. Men in science . . . team together. Men in architecture, in law, in advertising . . . team together . . . and so do physicians.

Find an assistant, an associate. Ask us! We'll find him for you . . . so that his ability, his knowledge of modern ways, his willingness to do, his consultations would save your time and give you hours and days and weeks each year to do the things you want to do.

Write and tell us the type of man you want. Describe him as completely as you can. Tell us all about yourself, your hopes and needs and ways. We'll help you find him.

THE MEDICAL BUREAU
32nd Floor
Palmolive Building Chicago 11, Illinois

Continued from page 66

Texas Pediatric Society has elected Dr. J. R. Lemmon, Amarillo, President; Dr. C. B. Alexander, San Antonio, President-Elect; and Dr. John E. Ashby, Dallas, Secretary-Treasurer.

Texas Surgical Society has elected Dr. Walter G. Stuck, San Antonio, President; Dr. M. B. Stokes, Houston, First Vice-President; Dr. Joe McGuire, Dallas, Second Vice-President; Dr. T. G. Blocker, Galveston, Secretary; and Dr. G. W. N. Eggers, Galveston, Treasurer, reelected.

Texans recently named as Civilian Consultants to the Secretary of War are: Dr. David R. Sacks, San Antonio; Dr. Lester C. Feener, El Paso, internal medicine; Dr. John A. Hardy, El Paso, general surgery; Dr. Louis Breck, El Paso; Dr. David N. Cameron, El Paso, orthopedic surgery; Dr. Raleigh L. Davis, San Antonio; Dr. Wickliff R. Curtis, El Paso, urology; Dr. Charles W. Tennison, San Antonio; Dr. Fruman G. Winter, San Antonio, anesthesiology; Dr. Francis A. Snidow, El Paso, obstetrics and gynecology; and Dr. M. P. S. Spearman, El Paso, ear, nose and throat.

Dr. Robert William Davis, formerly Assistant Professor of Psychiatry, University of Colorado School of Medicine, Denver, is Assistant Professor of Neuropsychiatry, University of Texas and Assistant Director, State Psychopathic Hospital, Galveston.

Dr. Henry H. Sweets, Associate Professor of Pathology, University of Texas, Galveston, has resigned to accept a position at the University of Louisville School of Medicine, Louisville, Kentucky.

Dr. A. N. Taylor, Assistant Professor of Physiology, University of Texas, Galveston, has resigned to go to the University of Oklahoma School of Medicine, Oklahoma City, Oklahoma.

Dr. A. D. Patillo, succeeds Dr. Roy C. Sloan as Superintendent of the State Hospital, Terrell.

St. Joseph's Infirmary, Houston, recently elected to its staff Dr. Hugh C. Welsh, President; Dr. G. N. Cunningham, Vice-President; and Dr. Palmer Wigby, Secretary.

Continued on page 72

Classified Advertisements

CLINICAL DIRECTOR—Maryland State Hospital Service. Must be thoroughly experienced and capable of teaching. Salary $4,200 to $5,250 and complete maintenance. Examination will be held week of January 20th. Apply immediately or not later than January 15th to State Employment Commissioner, 22 Light Street, Baltimore 2, Maryland.

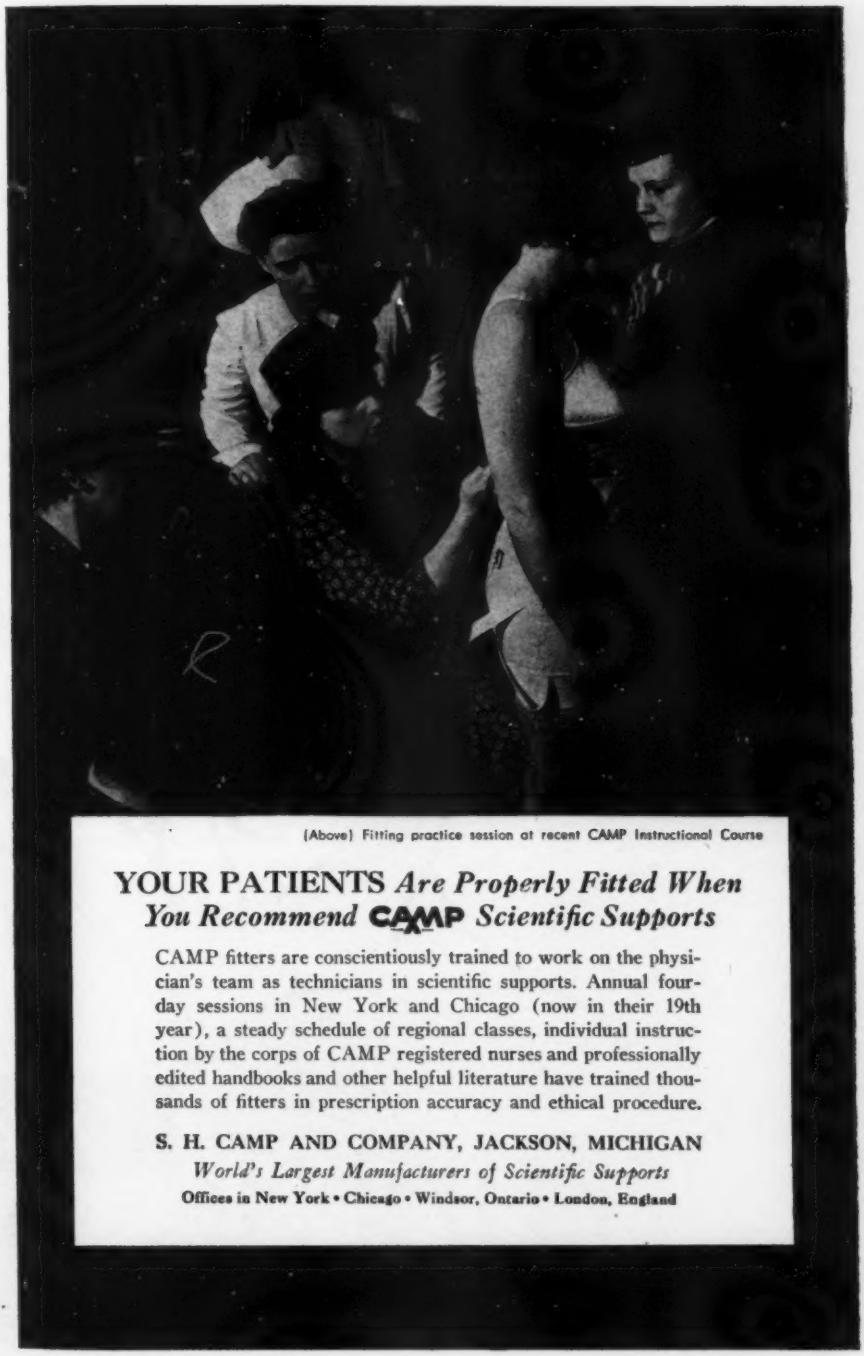
DERMATOLOGIST with national reputation, having beautifully furnished and modernly equipped offices in Southern Florida, is willing to take partner in large lucrative practice. Write for further information to Patricia Edgerly, Director, New York Medical Exchange, 489 Fifth Avenue, New York City.

UROLOGIST wishes Southern location to practice either with group of specialists, as assistant to established urologist, or solo in nice location; Johns Hopkins graduate, 1922 to 1927; married, no children. Write SEJ, care Southern Medical Journal.

WANTED—Medical Director for a small 80-bed tuberculosis sanatorium located in a thriving Southern city. Surgical training as well as clinical experience required; liberal salary, attractive home. Send photo and full information first letter. Write LTS, care Southern Medical Journal.

WANTED WOMAN PHYSICIAN—To conduct office in Florida, seasonally or year-round; with Florida license and knowledge of dermatology preferable but not obligatory. State past experience, training, age, etc., in letter to Mrs. Sally Arnold, 501 Conniston Road, West Palm Beach, Florida.

VIRGIN FISHING WATERS—It is a real pleasure to entertain a group of true sportsmen. Last year when MANOTAK LODGE opened for its first season, the high percentage of guests from the medical profession was very much to our liking. In 1947 we are catering almost exclusively to these discriminating professional men. If you are an M.D. or a D.D. we will make every effort to give preference on reservations in this beautiful new lodge on Perrault Lake in western Ontario. Write Manotak Lodge, Quibell, Ontario or 342 Madison Avenue, New York 17, N. Y.



(Above) Fitting practice session at recent CAMP Instructional Course

YOUR PATIENTS *Are Properly Fitted When You Recommend* CAMP *Scientific Supports*

CAMP fitters are conscientiously trained to work on the physician's team as technicians in scientific supports. Annual four-day sessions in New York and Chicago (now in their 19th year), a steady schedule of regional classes, individual instruction by the corps of CAMP registered nurses and professionally edited handbooks and other helpful literature have trained thousands of fitters in prescription accuracy and ethical procedure.

S. H. CAMP AND COMPANY, JACKSON, MICHIGAN

World's Largest Manufacturers of Scientific Supports

Offices in New York • Chicago • Windsor, Ontario • London, England

in painful, inflamed throat
White
Dillard
LABORATORIES, INC., Pharmaceutical Manufacturers, Newark

prompt, effective local analgesia

Bringing the analgesia into intimate contact with the inflamed area in tonsillitis, pharyngitis and common "sore throat", after tonsillectomy, Aspergum:

1. increases salivary flow; continuously laves with acetylsalicylic acid all oropharyngeal areas, including those seldom reached by gargles or irrigations;
2. stimulates activity of muscles of mastication and deglutition; reduces local spasticity and stiffness;
3. by enhancing patient comfort, encourages early ingestion of suitable diet, hastens convalescence;
4. assures patient cooperation through ready acceptance by all, including children.

Ethically promoted, not advertised to the laity.
In packages of 16; moisture-proof bottles of 36 and 250 tablets.

Aspergum

A complete line for clinical laboratories devoted to all branches of chemistry, bacteriology, hematology, and parasitology. Tested and checked in our own clinical laboratories. Purity warranted. Our facilities assure prompt shipment of large or small orders. Inquiries invited.

COMPLETE CATALOG

and Medical Reference Guide

Reagents catalogued alphabetically—also according to subjects and techniques, plus medical reference guide. Catalog comprises full line blood testing sera including anti-Rh, anti-M and anti-N; also reagents for Wassermann, Kline, and Kahn tests. Write for your copy. FREE ON REQUEST.

GRADWOHL
LABORATORIES
R. B. H. Gradwohl, M. D., Director
3514 Lucas Av. St. Louis, Mo.

Continued from page 68

Southwestern Medical Foundation has been awarded a grant of $5,000 by the First Texas Chemical Manufacturing Company, Dallas, for carrying on research work in the Department of Pharmacology.

Deaths

Dr. Henry B. Trigg, Fort Worth, aged 66, died recently.

Dr. Harry Breckenridge Jacobson, Dallas, aged 54, died recently of congestive heart disease.

Dr. John Howell McLean, Fort Worth, aged 69, died recently of acute hemorrhagic nephritis.

Dr. Gordon Phillips, Haskell, aged 39, died recently of epidural abscess and double lobar pneumonia.

Dr. Joseph Wilmer Cox, Groesbeck, aged 79, died recently.

Dr. Henry Matthias Haynes, Gatesville, aged 70, died recently of coronary thrombosis.

Dr. Harry Breckenridge Jacobson, Dallas, aged 56, died recently of coronary disease.

Dr. Oscar Henry Shepard, O'Donnell, aged 80, died recently from a blood clot in the heart.

Dr. Charles Bullard Williams, Mineral Wells, aged 72, died recently of cerebral hemorrhage.

VIRGINIA

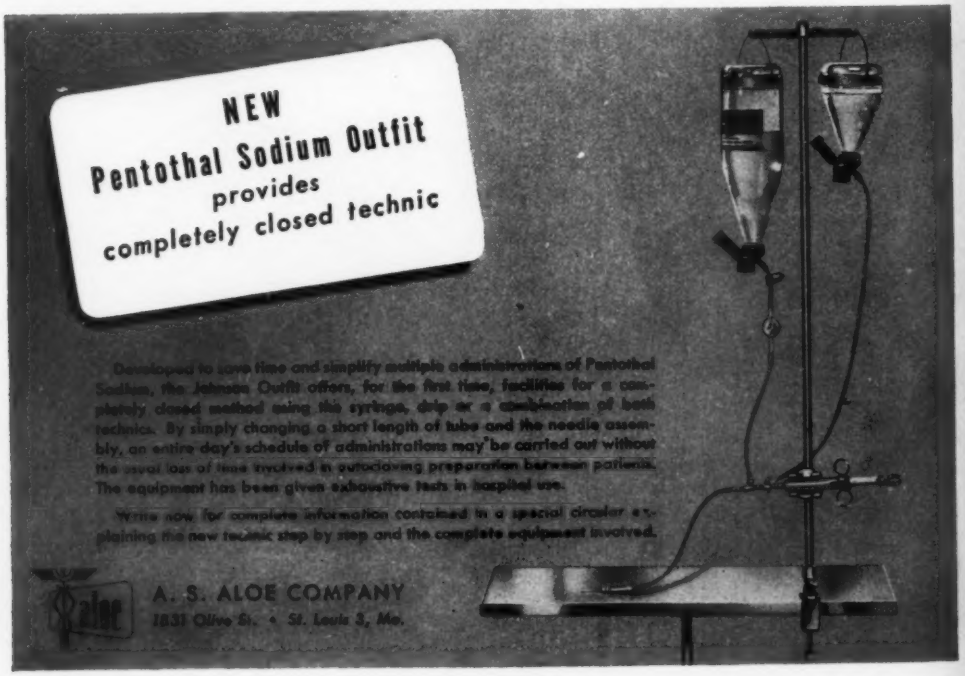
Medical Society of Virginia at its recent annual meeting installed Dr. W. L. Powell, Roanoke, President; and elected Dr. Guy Fisher, Staunton, President-Elect; Dr. A. Brownley Hodges, Norfolk, Dr. Carrington Williams, Richmond, and Dr. W. C. Akers, Stuart, Vice-Presidents; and reelected Miss Agnes V. Edwards, Richmond, Secretary-Treasurer. The 1947 meeting will be held at the Hotel Roanoke, Roanoke, dates to be announced later.

Southwestern Virginia Medical Society has elected Dr. Charles F. Graham, Wytheville, President; Dr. Douglas Vance, Bristol, Vice-President; and Dr. A. F. Giesen, Radford, Secretary-Treasurer, reelected.

Louisa County Medical Society has elected Dr. E. B. Pendleton, Cuckoo, President; and Dr. J. Langdon Moss, recently located in Louisa, Secretary.

Virginia Obstetrical and Gynecological Society has elected Dr. L. L. Shamburger, Richmond, President; Dr. Walter McMann,

Continued on page 74


NEW
Pentothal Sodium Outfit
provides
completely closed technic
Developed to save time and simplify multiple administrations of Pentothal Sodium, the Johnston Outfit offers, for the first time, facilities for a completely closed method using the syringe, drip or a combination of both technics. By simply changing a short length of tube and the needle assembly, an entire day's schedule of administrations may be carried out without the usual loss of time involved in autoclaving preparation between patients. The equipment has been given exhaustive tests in hospital use.
Write now for complete information contained in a special circular explaining the new technic step by step and the complete equipment involved.
A. S. ALOE COMPANY
1831 Olive St. • St. Louis 3, Mo.

One less worry for me...

"AMERICAN"

SMALL INSTRUMENT STERILIZERS

provide "burn-out-proof" safety

To say that Doctor and I are enthusiastic about our new American Office Sterilizer is putting it mildly. The automatic control of on-and-off operation, *plus* the added greater safety of PERMANENT low-water cut-off saves me many headaches. It's my constant protection against burn-out loss of both instruments and sterilizer in case I ever forget to switch off the current before I leave . . . it shuts off automatically! Should I inadvertently leave the sterilizer in operation, I can start it again the next morning by simply replenishing the water in the chamber and turning on the current again by a flick of the switch . . . and with no damage done.

There are other features which appeal to us too. Note that the cover, which opens to a full 90° position for unobstructed removal of tray, elevates approximately 30° before lifting of tray begins. The level of the water in relation to immersed instruments can thus be easily and conveniently checked. And the completely recessed foot pedal which controls the cover lift . . . eliminates tripping annoyances and permits greater freedom of access.

NOW AVAILABLE: 14" and 16"-sizes in Portable and Cabinet models. A selection of beautifully finished alternate cabinet designs subject to availability.

ORDER TODAY or write for descriptive literature

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Erie, Pennsylvania

DESIGNERS AND MANUFACTURERS OF SURGICAL STERILIZERS, TABLES AND LIGHTS

The Quick, Easy Way to Strain **FRESH** *Foods*

The Foley Food Mill conserves mother's time and energy in straining fresh vegetables and fruits. With just a few turns of the handle, the Foley Food Mill separates fibres and hulls, pureeing all cooked foods fine enough for the smallest baby or adult diet—peas, carrots, beets, string beans, spinach, apple sauce, prunes. Made of steel, rust and acid-resistant. Available through department and hardware stores, or send coupon.

Retail price $1.50. Special Offer to doctors, 1 only, $1.00 postpaid.

FOLEY FOOD MILL

FOLEY MFG. CO. 85-1 Second St. N. E. Minneapolis 13, Minn.

As per special offer to Doctors only, I enclose $1.00 for 1 Household Size Foley Food Mill.

Name.....

Address.....

Continued from page 72

Danville, Vice-President; and Dr. W. D. Suggs, Richmond, Secretary-Treasurer.

Virginia Orthopedic Society has elected Dr. James T. Tucker, President; Dr. George A. Duncan, Norfolk, Vice-President; and Dr. H. H. Wescott, Roanoke, Secretary-Treasurer.

Virginia Pediatric Society has elected Dr. Paul Hogg, Newport News, President; Dr. Charles P. Brown, Norfolk, Vice-President; and Dr. Louise Galvin, Richmond, Secretary-Treasurer.

Virginia Radiological Society has elected Dr. Vincent W. Archer, Charlottesville, President; Dr. R. A. Davis, Newport, Vice-President; and Dr. Philip B. Parsons, Norfolk, Secretary-Treasurer.

Virginia Society of Pathology and Laboratory Medicine has elected Dr. M. B. Beecroft, Newport News, President; Dr. Lawrence J. Motyca, Norfolk, Vice-President; and Dr. M. L. Dreyfuss, Clifton Forge, Secretary-Treasurer.

Virginia Urological Society has elected Dr. W. W. S. Butler, Roanoke, President; Dr. Charles M. Nelson, Richmond, Vice-President; and Dr. W. W. Koontz, Lynch, Secretary-Treasurer.

Virginia Section, American College of Physicians, has elected Dr. Charles M. Caravati, Richmond, Chairman; and Dr. J. F. Waddill, Norfolk, Secretary. Dr. J. Edwin Wood, Jr., Charlottesville, is the Governor for Virginia.

Dr. Frank S. Johns, of Johnston-Willis Hospital, Richmond, was elected President of the Southern Surgeons Association that met recently at Hot Springs.

Dr. Herbert S. Bryfogle, St. Louis, Missouri, has been appointed the first Chief Medical Examiner in Virginia.

Southern Psychiatric Association which met in Richmond recently installed Dr. Robert H. Felix, Washington, D. C., President in place of Dr. James K. Hall, Richmond, who resigned on account of illness; Dr. J. Asa Shield, Richmond, Vice-President; Dr. R. Burke Suitt, Durham, North Carolina and Dr. Guy Witt, Dallas, Texas, Councilors; and Dr. Newdigate M. Owensky, Atlanta, Georgia, Secretary-Treasurer, reelected.

Dr. Wiley D. Lewis, formerly at St. Albans Sanatorium, Radford, is on the staff of the Highland Hospital, Asheville, North Carolina.

Dr. Daniel D. Chiles, recently of Orchard Park, New York, is affiliated with Saint Albans Sanatorium, Radford.

Dr. John S. Howe has resigned as Professor of Pathology, Medical College of Virginia, Richmond, and is now Pathologist and Director of Laboratories, Methodist Hospital, Brooklyn, New York.

Dr. Norman G. Patterson, Richlands, has moved to Bristol, Tennessee.

Continued on page 76

A-O Operating Lamp

Provides better light, greater usefulness and convenience

Designed by A-O scientists to meet the needs of leading eye, ear, nose, and throat specialists, the A-O Operating Lamp eliminates objectionable features of older lamps and incorporates engineering advancements of the past six years.

Illumination from this new A-O Lamp is evenly distributed and of great intensity. The size of the spot of light is easily adjustable. At 14 inches an intense spot approximately 3½ inches in diameter is obtained.

Aluminum die castings and plastics are utilized in the streamlined modern construction for strength and lightness. The pistol-type grip and proper balance provide convenience and ease in use.

Change-over from hand-held to stand operation is easily accomplished through use of a socket molded into the pistol type handle.

High efficiency lamps are usually difficult to ventilate properly, but the A-O lamp utilizes a special body design to combine maximum illumination with efficient heat dissipation and cooling.

Your A-O Representative will be glad to demonstrate this new lamp.

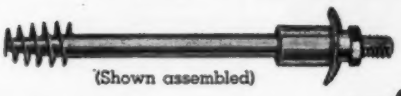
American Optical

Now Improved and Manufactured by
the Zimmer Manufacturing Co.

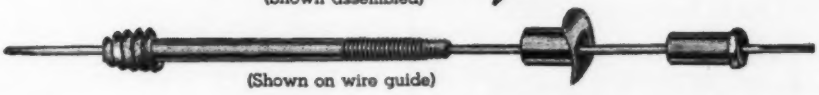
MOREIRA STUD-BOLT SCREW

For Operative Treatment of
Fracture of the Neck of the Femur

Screw shown in position illustrating strong impaction produced when lock nut is tightened.



(Shown assembled)



(Shown on wire guide)

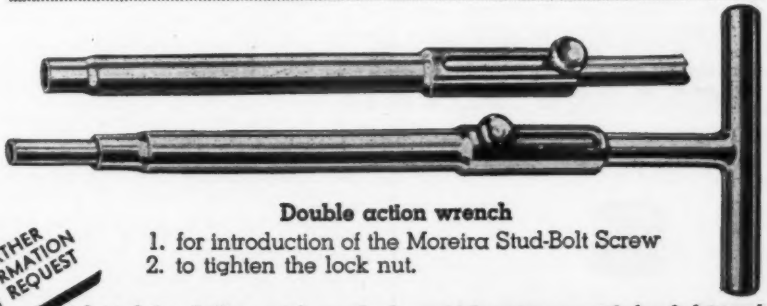
MOREIRA STUD-BOLT SCREW

Available in 6 lengths: (Stainless Steel Only)

2 - 61/64 3 - 17/64 3 - 11/32 3 - 35/64 3 - 3/4 3 - 15/16

Trephine for perforation of cortex
(with movable piece to eject bone fragment)

Drill for screw channel through trochanter and neck of femur.



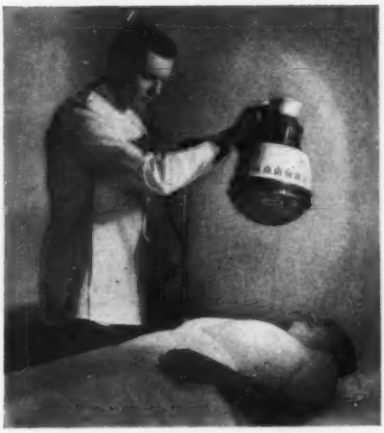
Double action wrench

1. for introduction of the Moreira Stud-Bolt Screw
2. to tighten the lock nut.

FURTHER INFORMATION ON REQUEST

Adapted for drilling with standard surgical motor or with hand driven bone drill.

Zimmer
MANUFACTURING CO. WARSAW, IND.



Dual Convenience and Economy in Infra-Red Radiation

Infra-red radiation is indicated to induce hyperemia, increase blood supply locally, to combat inflammation and congestion, to relax spasm and relieve pain.

THE Burdick DUAL ZOALITE

—offers the distinctive convenience and economy of two infra-red lamps in one: a 75 watt "Localizer" for face, ear and neck, and a 475 watt unit for more extensive areas, such as chest and back. Either unit is instantly positioned by turning the adjustable head.

Equipped with Burdick patented single bar non-metallic element — no "bulbs" to break. Double wall ventilated reflector. Stand and head fully adjustable for height and angle.

Two models of the Dual Zoalite are available—the Z-15-B equipped with mobile caster base, and the Z-15 having the stationary base.

AMERICAN MEDICAL ASSOCIATION ACCEPTED COUNCIL ON PHYSICAL MEDICINE

The BURDICK CORPORATION
MILTON WISCONSIN

Continued from page 74

Dr. Paul J. Bundy, Dante, has moved to Mountain City, Tennessee.

Dr. John W. Martin, formerly of Roanoke Rapids, North Carolina, has located at Yorktown.

Dr. Ben L. Boynton, formerly of Norfolk, is Director of Physical Medicine, West Texas Memorial Hospital, San Angelo, Texas.

Dr. Gordon Willis Jones, released from military service, has opened an office in the Professional Building, Fredericksburg, practice limited to obstetrics and gynecology.

Dr. Jack B. Porterfield has resigned as Director, Department of Health of the City of Richmond, and is succeeded by Dr. Charles Howe Eller, formerly Health Officer for Charlottesville and Albermarle County but recently connected with the faculty of Johns Hopkins Medical School, Baltimore, Maryland.

Virginia League for Planned Parenthood has elected Dr. H. Hudnall Ware, Jr., Richmond, President; and Dr. M. Pierce Rucker, Richmond, Chairman, reelected, of the Medical Advisory Committee with the following members: Dr. C. J. Andrews, Norfolk; Dr. B. B. Bagby, Edwardsville; Dr. Dean B. Cole, Richmond; Dr. A. M. Groseclose, Roanoke; Dr. W. R. Payne, Newport News; Dr. F. O. Plunkett, Lynchburg; Dr. H. Hudnall Ware, Jr., Richmond; and Dr. T. J. Williams, University.

Dr. W. C. Mason, Gordonsville, is with the Veterans Administration in the Regional Office, Out-Patient Department, Roanoke.

Dr. Thomas Scarlott has resigned as Health Officer of Fairfax County and is succeeded by Dr. Henry C. Bradford, released from military service.

Dr. Joseph Stuart Staley and Miss Dorothy Maxine Thomas, both of Marion, were married recently.

Deaths

Dr. William Preston Burton, Covington, aged 48, was killed in an airplane crash recently.

Dr. Claudius James Riddick, Suffolk, aged 87, died recently.

Dr. Raymond William Paul, Richmond, aged 53, died recently.

Dr. Robert Edward Timberlake, Richmond, aged 56, died recently.

Dr. Edward Newton Lillard, Madison, aged 74, died recently.

Dr. Elliott DeJarnette, Ashland, aged 73, died recently.

Dr. Richard E. Wilkinson, McKenney, aged 80, died recently.

Dr. William Chapman Chilton Jr., Appomattox, aged 33, died recently.

WEST VIRGINIA

Dr. Andrew E. Amick, Lewisburg, has been named District Health Officer and Pediatric Consultant for District No. 2, composed of Greenbrier, Pocahontas and Monroe Counties.

Dr. O. T. Coffield, Morgantown, has joined the staff of the University Health Service, West Virginia University.

Dr. John E. Cannaday, Charleston, was elected one of the Vice-Presidents of the International College of Surgeons at its recent annual meeting held in Detroit, Michigan.

Dr. Arnold Wilson, Welch, released from military service, has moved to Pasadena, Texas, and opened offices in the Jensen Building.

Dr. Paul J. Nutter, Clarksburg, several months ago released from military service, is located in Fredericksburg, Virginia.

Dr. David A. Watkins, formerly of Masontown, released from military service, is with the Veterans Administration regional office, Huntington.

Dr. Robert G. Smith, formerly of Beckley, after being released from military service, is residing temporarily in Columbus, Ohio.

Dr. Julian R. Kaufman, formerly of Charleston, after being released from military service, is located at Louisville, Kentucky with offices in the Francis Building.

Dr. Lewis E. Nolan, formerly of Montgomery, is located at Monroe, Louisiana.

Dr. William U. Cavallaro, Manasquan, New Jersey, has accepted a residency in orthopedic surgery at Morris Memorial Hospital, Milton, succeeding Dr. Earl F. Winter, who has accepted a two-year residency in surgery at the Lahey Clinic, Boston, Massachusetts.

Dr. Edward J. Evans, Huntington, has accepted a two-year residency in pediatrics at Medical College of Virginia, Richmond.

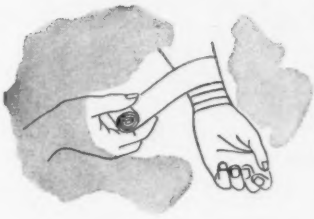
Cabell County Medical Society has elected Dr. James S. Klumpp, President; Dr. L. J. Moore, Vice-President; and Dr. Thomas L. Grove, Secretary, all of Huntington.

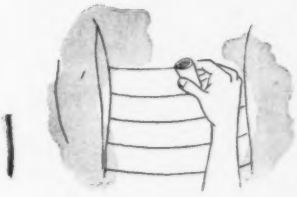
McDowell County Medical Society has elected Dr. Edmund O. Gates, Welch, President; Dr. E. C. Gibson, Coalwood, Vice-President; Dr. A. J. Villani, Welch, Secretary; and Dr. A. H. Bracey, Welch, Treasurer.

Deaths

Dr. Charles Marion Anderson, Huntington, aged 80, died recently of senility and uremia.

Dr. Oliver Dustin Barker, Parkersburg, aged 64, died recently.





It saves busy doctors extra trips to homes

It's easy for your patients to follow out home applications of Adaptic —the Johnson & Johnson Elastic Bandage:

1. **Adaptic is made to stretch without narrowing when wound. The finest long-staple cotton gives it extra elasticity.**

2. **Consequently, it rolls smoothly without reversing—easy for untrained hands. Will not ravel.**

3. **It's cool and fits comfortably.**

Simple home laundering restores the elasticity of Adaptic. So it can be reused many times, making its cost comparatively low. Available in 2", 2½", 3" and 4" widths.

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the Johnson & Johnson

ELASTIC BANDAGE

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S

SHOULD VITAMIN D BE GIVEN ONLY TO INFANTS?

VITAMIN D has been so successful in preventing rickets during infancy that there has been little emphasis on continuing its use after the second year.

But now a careful histologic study has been made which reveals a startlingly high incidence of rickets in children 2 to 14 years old. Follis, Jackson, Eliot, and Park* report that postmortem examination of 230 children of this age group showed the total prevalence of rickets to be 46.5%.

Rachitic changes were present as late as the fourteenth year, and the incidence was higher among children dying from acute disease than in those dying of chronic disease.

The authors conclude, "We doubt if slight degrees of rickets, such as we found in many of our children, interfere with health and development, but our studies as a whole afford reason to prolong administration of vitamin D to the age limit of our study, the fourteenth year, and especially indicate the necessity to suspect and to take the necessary measures to guard against rickets in sick children."

*R. H. Follis, D. Jackson, M. M. Eliot, and E. A. Park: Prevalence of rickets in children between two and fourteen years of age, Am. J. Dis. Child. 66:1-11, July 1943.

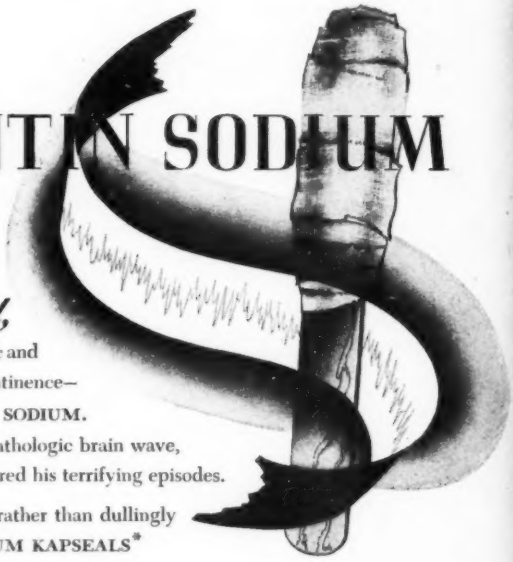
MEAD'S Oleum Percomorphum With Other Fish-Liver Oils and Viosterol is a potent source of vitamins A and D, which is well taken by older children because it can be given in small dosage or capsule form. This ease of administration favors continued year-round use, including periods of illness.

MEAD'S Oleum Percomorphum furnishes 60,000 vitamin A units and 8,500 vitamin D units per gram. Supplied in 10- and 50-cc. bottles and bottles of 50 and 250 capsules. Ethically marketed.

MEAD JOHNSON & COMPANY, Evansville 21, Ind., U.S.A.

SYMBOLS OF SIGNIFICANCE

DILANTIN SODIUM



The cry, the fall,
the champing teeth, the tonic and clonic contractures, the incontinence—all may yield to **DILANTIN SODIUM.** The E.E.G. can trace the pathologic brain wave, yet the epileptic may be spared his terrifying episodes.

Powerfully anti-convulsant rather than dullingly hypnotic, **DILANTIN SODIUM KAPSEALS*** offer to the epileptic a sense of security and an opportunity to lead a more normal and useful life.

DILANTIN SODIUM KAPSEALS—another product of revolutionary importance in the treatment of a specific disease; another of a long line of Parke-Davis preparations whose service to the profession created a dependable symbol of significance in medical therapeutics—**MEDICAMENTA VERA.**

DILANTIN SODIUM KAPSEALS (diphenylhydantoin sodium), containing 0.03 Gm. (½ grain) and 0.1 Gm. (1½ grains), are supplied in bottles of 100, 500 and 1000. Individual dosage is determined by the severity of the condition.

*Trademark Reg. U. S. Pat. Off.

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